The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. XLIX. CHICAGO, ILLINOIS, JULY 6, 1907. No. 1.

Addresses

STATE MEDICINE: ITS FOUNDATION, SUPERSTRUCTURE AND SCOPE.

INCLUDING A SCHEME FOR A PUBLIC HEALTH SYSTEM ADAPTED TO COUNTIES, STATES AND THE NATION.*

W. H. SANDERS, M.D.

Health Officer of Alabama.

MONTGOMERY, ALA.

I should be unpatriotic and uncivil did I not deeply realize and warmly announce that this is historic ground. Here, more than a century ago, principles were proclaimed and deeds done that flashed on the world like a lightning stroke and illumined the way to liberty and law with a brilliancy that startled kings and potentates on their ancestral but treacherous thrones. Those principles found fertile soil in the courageous bosoms of colonists, who, embodying them in their creeds, vindicated them with their valor and their blood.

Near by are Plymouth Rock, Dorchester Heights, Boston Common, Bunker Hill, Cambridge, Concord and Lexington—all names that have helped to kindle the fires of patriotism in the bosoms of succeeding generations of American school boys and to keep them burning until at the close of loyal lives their bodies were laid away in the soil they so early learned to love so well.

When one recalls the momentous events of that unique and significant landing on this shore, the trials and tragedies through which those heroic pioneers passed, and the proud victories they won in forest, field and forum, it is not strange that this soil has been prolific in soldiers, statesmen, orators, jurists, historians, poets and scholars. While proclaiming that all these vocations have been adorned by illustrious sons of this Commonwealth, the words are uncoined with which to pay just tribute to the mothers who fed these men in infancy from their fertile and faithful bosoms, who guided their youthful footsteps along the paths of truth and virtue, and who fired their manly hearts with noble impulses and lofty aims.

Bostonians! Men and Women of Massachusetts! I salute you as the proud descendants of a noble ancestry, an ancestry from which you have received a royal heritage of moral heroism and of mental and material achievement. May these priceless treasures go down to your children's children in unbroken succession and with unfailing vigor.

However rich this field of thought, the duty of the hour compels me to abandon it, which I do by inviting your attention to a discussion of the following theme: "State Medicine, Its Foundation, Superstructure and Scope, Including a Scheme for a Public Health System adapted to Counties, States and the Nation."

Accepting the term, state medicine, to mean the exercise of power by a civil government for the protection of its people against disease, as well as for the promotion of their physical welfare and development, the first inquiry that meets us at the threshold of the discussion is: On what foundation does this power rest?

As the welfare of a government is but the aggregate of that of its individual citizens, this power can, in the last analysis, be reduced to the supreme law of self-defense, an inalienable and essential right that belongs to governments as to individuals.

Since a thinker so acute and profound as Herbert Spencer has argued that sanitary supervision is not a legitimate function of government, this position seems worthy of some analysis. Without undertaking to reproduce at any length Mr. Spencer's argument, it is easy to see that, among other ways, he was betrayed into error by assuming the existence of analogies where none exist.

Quoting from his "Social Statics" we find the following:

> There is a manifest analogy between committing to government guardianship the physical health of the people and committing to it their moral health. If the welfare of men's souls can be fitly dealt with by acts of parliament, why then the welfare of their bodies can be fitly dealt with likewise. . . . The arguments employed by the dissenter to show that the moral sanity of the people is not a matter for state superintendence are applicable, with a slight change of terms, to their physical sanity also.

In this argument Mr. Spencer is guilty of the amazing error of assuming that the soul and the body are analogues. Take away that premise, which no one will hesitate for a moment to do, and the fallacy of the argument quoted is at once exposed. It is evident that within reasonable limits the body can be controlled by governmental authority, but such authority is powerless to control the soul. Infection in the body may be detected and measures instituted to prevent its propagation, but the soul eludes inspection and may, in defiance of government, both harbor and propagate infection of the foulest kind. Through the fear of penalties men may be restrained from the physical act of murder, but not from the malicious desire to kill. The question is not merely one of right on the part of a government to exercise a power, but of ability to make that power effective. Although powerless to legislate wickedness out of men's minds and hearts, may not a government legislate diseases out of their bodies, in so far as its power extends? No analogy exists, therefore, betwixt legislating for the physical and for the moral sanity of a people; the one is practicable, the other impracticable; the one logical, the other illogical.

Rejecting Mr. Spencer's reasoning and endorsing a noble sentiment proclaimed by Lord Beaconsfield in

*Oration on State Medicine before the Fifty-seventh Annual Session of the American Medical Association, Boston, June, 1906. The manuscript of this address was not forwarded to THE JOURNAL until recently, hence the lateness of its appearance.

these words, "The health of the public ought to be one of the chief considerations of a statesman," the postulate is submitted that every government should provide itself with a complete, coherent and efficient public health system, by and through which it may exercise its inherent right of sanitary supervision over the bodies of its citizens.

In formulating such a system one fundamental and material principle must be incorporated, namely, a public health system must correspond in construction with the government to which it belongs. Under the application of this principle it is evident that the public health system of a monarchy and that of a democracy would differ in many and essential particulars, and that between these two systems, standing at the extremes, many modifications would be required in order to provide a system adapted to each existing form of government. A public health system, like any other arm of government, must derive its power from where power exists; in a monarchy from the king, in a democracy from the people, and in other and mixed forms of government from the existing source of power.

These general propositions announced, the field of discussion will be restricted to outlining a public health system believed to be adapted to our form of government. The fact that our government is a complex one surrounds the work of construction with some, but not insuperable, difficulties. The ground over which we are now assembled is a constituent part of the city of Boston, likewise of the county of Suffolk, likewise of the state of Massachusetts, and finally of the United States; that is, a series of concentric governments exist, each having jurisdiction within certain spheres over this locality. Similar conditions exist in all other localities of the United States.

In constructing a public health system for this country the relative rights and duties of the public health officials that would represent these concurrent governments must be definitely defined and accurately adjusted. To do this it is imperative that we ascertain in which one of these governments does sovereignty as to public health powers reside. All will concede that the Constitution of the United States as interpreted by the Supreme Court is the source from which this information must be derived. All will further agree that the general government is a government of delegated powers and does not possess any powers other than those delegated to it by the states, as embodied in the Constitution. It is safe to assert that not a line in that document can be pointed out delegating to the general government public health powers, and inasmuch as the spontaneous generation of power in the general government is quite as much of an impossibility as in physics, it is clear that the general government can not and does not possess a power never delegated to it. But let us appeal to the Supreme Court of the United States, the highest tribunal of the land, for an authoritative adjudication of this question.

In Gibbons vs. Ogden, 9th Wheaton, p. 203, Chief Justice Marshall said:

> Inspection laws, quarantine laws, health laws of every description, as well as laws for regulating the internal commerce of a state and those which affect turnpikes, roads, etc., form a portion of that immense mass of legislation which embraces everything within the territory of a state not surrendered to the general government. No direct general power over these subjects is granted to Congress, and consequently they remain subject to state legislation.

In Fertilizing Company vs. Hyde Park, 97 U. S., p. 667, Mr. Justice Swayne said:

> That power (the police power) belonged to the states when the federal constitution was adopted. They did not surrender it, and they all have it now. It extends to the entire property and business within their local jurisdiction.

In Patterson vs. Kentucky, 97 U. S., p. 505, Mr. Justice Harlan said:

> Hence the states, may by police regulation, protect their people against the introduction within their respective limits of infected merchandise. A bale of goods on which duties have or have not been paid, laden with infection, may be seized under health laws, and if it can not be purged of its poison, may be committed to the flames. So may the states by like regulation exclude from their midst not only convicts, paupers, idiots, lunatics and persons likely to become a public charge, but animals having contagious diseases.

Judge McLean, in the Passenger cases, 7 How., p. 400, said:

> In giving the commercial power to Congress the states did not part with that power of self-government which must be inherent in every organized community. They may guard against the introduction of anything which may corrupt the morals or endanger the heath or lives of their citizens.

In the Passenger cases, 7 How., p. 414, Mr. Justice Swayne said:

> The states of the Union may, in the exercise of their police powers, pass quarantine and health laws, interdicting vessels coming from foreign ports, or ports within the United States, from landing passengers and goods, prescribe the places and time for vessels to quarantine, and impose penalties on persons for violating the same; and . . . such laws, though affecting commerce in its transit, are not regulations of commerce.

Could stronger or clearer words be used? Can any amount of verbal legerdermain rob these decisions of their plain and obvious meaning? Do they not place sovereignty as to public health powers in the states? If so, can Congress constitutionally place it elsewhere? The question is not what the Constitution might have done, but what it did do.

Owing to outbreaks of yellow fever, which took place in the South last summer, this question of sovereignty as to public health powers has assumed a very acute stage, has been much discussed, and is now deeply and directly involved in legislation pending in Congress. While time does not permit of any extended discussion of the point at issue, one argument the speaker has heard advanced by intelligent advocates of federal supremacy, and evidently deemed by them invulnerable, will be briefly noticed. The argument is stated thus:

> If a hostile ship armed with heavy guns and manned by marines were approaching our shores, would it not be the right and the duty of the federal government to meet and repel such ship? Likewise, were a ship containing infection on board approaching our shores would it not equally be the right and duty of the federal government to repel such ship, or to render it harmless?

To some the two examples cited might seem parallel and the conclusion intended to be forced therefrom irresistible, but a moment's analysis will dispel such delusion. In the Constitution the war-making power is expressly delegated to the federal government, hence it becomes, not only the right, but the duty of that government to meet and repel the hostile ship. Not so with reference to the infected ship, no power over ships by reason of infection existing on board having been delegated by the states to the federal government. Had such delegation of power been made, then it would clearly be the duty of the federal government to meet

and repel, or render harmless, the infected ship. In so far as constitutional power in the general government is concerned the two examples cited are in no wise analogous; therefore, the conclusion which advocates of federal control would draw from the sophism quoted is wholly unwarranted and untenable.

Having cleared away some preliminary questions, we will now enter on the hypothetical construction of the proposed public health system, designed as it is to apply to municipalities, counties, states and the nation, and to constitute one articulated and coherent whole.

In building up any system the adoption of a unit of construction not only facilitates the work, but tends to render the result logical and symmetrical. In this instance a county medical society, organized in accordance with a scheme to be presently unfolded, will be adopted as the first unit of construction, and naturally such an organization will be placed at the foundation of the superstructure.

I. COUNTY MEDICAL SOCIETY—COUNTY BOARD OF HEALTH.

EXECUTIVE FORCE.

(*a*) Committee of public health.
(*b*) County health officer and assistants.
(*c*) Health officer for each municipality in the county.

It will be observed that in the above scheme a county medical society is made equal to, or synonymous with, a county board of health. Objection to this arrangement might be made on the ground that the members of a county medical society would be too numerous and too scattered to serve practically and efficiently as a board of health.

If by serving as a board of health it be understood that the members are to meet, discuss and decide on the policy to be pursued in the face of every menace to the public health, and then to participate, more or less, in supervising the execution of the policy decided on, the objection would be valid, and, therefore, fatal to the scheme proposed. But in constructing a public health system for a county a deliberative body must first be provided, one composed of members capable of discussing in a scientific as well as practical way the sanitary interests of the people, so as to evolve the best principles and plans for the promotion of those interests.

Unquestionably the physicians of a county would constitute such a body, their daily vocation being to study and their highest function to prevent disease. With a board of health so constituted not only would every member feel a personal interest in studying the sanitary needs of the people, but the people would become the beneficiaries of the combined sanitary knowledge of the physicians of the county.

Inquiry might arise as to whether the physicians of the counties would voluntarily organize for public health purposes. To this inquiry an affirmative answer may confidently be given. Indeed, the physicians of many, perhaps most, of the counties in the states are already organized for scientific and social purposes, and if to these objects that of the protection of the health of the people be added, an additional and powerful incentive to organization will have been infused into the minds and hearts of the members of the medical profession that will not only bring them together, but hold them together by that magnetism which visible and valuable fruit gathered as the result of organization will arouse.

To endow a county medical society with the authority of a board of health would necessarily require an act of the state legislature, but if the members of the profession in the several states will organize by counties, with the distinct purpose of acquiring this right, it will be conferred.

Naturally a board constituted as suggested would need executive officials. These are enumerated in the scheme as: A committee of public health, which should be composed of five members; a county health officer, with assistants; and a health officer for each municipality in the county.

While the committee of public health is reckoned under "executive force," the function of such committee is intended to be advisory rather than executive, the idea being to provide a small body of judicious and experienced members thoroughly competent to represent and speak for the parent board during the intervals of its sessions; and, further, a body capable of assembling quickly, so as to give the executive officials any advice or help they might need under critical or unusual conditions.

For many and conclusive reasons the election of all officials included under the term "executive force" should be conceded by law to the board of health, the chief of these reasons being stated as follows:

1. Such concession would place the selection of these officials in the most competent hands. 2. The fidelity of officials thus selected would be materially promoted by a consciousness on their part of the fact that their electors would be the most competent, and often the most critical, judges of their efficiency, and, therefore, of their fitness to succeed themselves. 3. Such concession would effectually divorce the system from politics and protect it from domination by commercial influence, advantages of immeasurable value that can be secured in no other way.

Considering the system thus far formulated as a whole, it will be seen that it provides for a deliberative board of health, composed of the very best material a county could furnish, and then for an executive force chosen by the board itself, thus correlating head and hand in such way as to secure unity of purpose and harmony of action, a combination of forces calculated to achieve all for the health of the people of a county that modern sanitary science can do.

We now advance to the next division of the system undergoing construction, or that applying to a state. Following the plan pursued with reference to a county, the salient features of *this* division will be set forth in schematic form:

II. STATE MEDICAL ASSOCIATION—STATE BOARD OF HEALTH.

EXECUTIVE FORCE.

(*a*) State committee of public health.
(*b*) State health officer.
(*c*) State bacteriologist and pathologist.
(*d*) State chemist.
(*e*) State registrar of vital and mortuary statistics.

It will be seen that the scheme of organization proposed for a state is in harmony with that formulated for a county.

For reasons corresponding with, but more imperative than, those assigned when discussing county organization, the medical association of a state should constitute the state board of health.

To confer plenary public health power on a few medical men in a state and exclude all others from any participation whatever in either deliberating on, or shaping

the policies to be pursued, will not only deprive the people of the counsels of the great body of the profession on sanitary questions, but will be in danger of leading to discord in the profession itself, a condition tending to weaken administration and seriously to impede sanitary progress. Indeed, complete success in the enforcement of any public health system whatever is impossible without the full, intelligent and hearty cooperation of the medical profession. Inspired authority tells us that "in multitude of counsels there is safety," a truth that should judiciously be applied in the construction of a public health system for state governments such as ours. To obtain this "multitude of counsels" on sanitary questions a forum must be established on which medical men who have ideas can be heard, where reports from executive officials can be rendered and discussed and, when necessary, explained, and where any disputes as to principles or policies can definitely be settled by vote.

By vesting a state medical association with the authority of a state board of health all of the difficulties pointed out will be avoided and all of the advantages claimed secured. When after due deliberation sanitary campaigns have been planned and policies fixed, execution should be wrought out under one man, a principle in perfect accord with the theory and practice of our civic governments.

Inasmuch as a state government is sovereign over its county governments, it logically follows that a state board of health should be sovereign over county boards, a principle that must be applied in practice in order to unite the latter into one homogeneous and effective whole.

The executive force a state board of health would need appears in the scheme. Here again the function of the committee of public health would be much more advisory than executive. The ten members of which such a committee should be composed ought to be men of judicial mould, thoroughly alive to the possibilities of state medicine, and capable when called on to aid in meeting emergencies of not only representing the parent board but of reflecting high credit on it.

The titles given the purely executive officials are sufficiently distinctive to indicate the nature of their duties, hence these need not be elaborated on. The method of protecting this division of the system against the baneful effects of political and commercial domination would be the same as that suggested for county boards, that is, to vest the election of all executive officials in the state board.

Having completed the superstructure undergoing erection, in so far as it applies to counties and states, the crowning position, corresponding with that of a dome, remains to be assigned to the national government.

The Supreme Court having denied to that government the possession of any public health power whatever, the inference would seem legitimate that it could not constitutionally participate in a public health system at all. This by no means follows. On the contrary, the federal government being the product of the organic union of the states in certain respects and for certain purposes, can not be otherwise than directly and deeply interested in the sanitary welfare of its constituent members. Naturally, therefore, it should stand ready to promote that welfare by whatever constitutional measures it can employ. But, obviously, before the general government can do anything in that direction it must create an official arm through which it can operate. In accordance with a principle announced in the early part of this discussion such arm should correspond in organization with a democratic form of government, that is, should include a deliberative body and an executive force.

Again adopting the schematic form, the following is submitted as an appropriate organization through and by means of which the national government could participate in public health work:

III. DELEGATES FROM STATE BOARDS—A NATIONAL BOARD OF HEALTH.

EXECUTIVE FORCE.

1. A commissioner of health.
2. Six assistant commissioners, assigned as follows:
(*a*) Organization and legislation.
(*b*) Epidemics and endemics.
(*c*) Maritime quarantine.
(*d*) Vital and mortuary statistics.
(*e*) Laboratories—biologic, chemical and pathologic.
(*f*) Demography.

It will be observed that the scheme contemplates the creation by Congress of a national board of health, such board to be composed of delegates from the state boards. One delegate from each state board would, according to the biblical requirement already quoted, supply a sufficient "multitude of counsels" to guarantee safety, but at the same time would not form a body so large as to be unwieldy.

The delegates usually selected to represent the state boards would be men who had undergone more or less training in public health work in their respective states; therefore, they would be in a favorable position for grasping and dealing with the broad sanitary problems they would understand could be completely solved in no other way than by cooperation between the states. Indeed, this spirit of cooperation, inspired by a clear conception of the benefits to accrue therefrom, would so dominate the deliberations of the national board as to lead to practical and highly fruitful results, and in many directions.

Objection might be offered to the creation of a national board of health on the ground that the general government, being itself destitute of all public health power, could not endow a board with any public health power whatever. Accepting the theoretic and constitutional correctness of the objection, it yet remains that a national board of health could aid immensely in advancing the cause of sanitary progress.

The semi-annual meetings of such a board would constitute a great school for study and a great center for disseminating education.

The subjects discussed, the demonstrations made, and the data furnished at these meetings would yield a rich and ever-growing mass of scientific and practical information that could and would be applied to the prevention and extinction of diseases. Indeed, the recommendations of the board would soon acquire a moral force and power more imperious than statutes, state or national. As many of these recommendations would apply to municipalities, counties and states, they would be cordially accepted by the representatives of the states and carried home to be enforced by municipal ordinances or state laws. In this way and in many other ways the board, although clothed with advisory authority only, might set on foot and work out great sanitary reforms.

The good work need not stop here. The Constitution provides that compacts between the states may be

made, such compacts corresponding with treaties between separate and independent nations. One of the functions of a national board of health would be, or should be, to study the public health relations existing between the states, and to formulate a code of rules for so regulating these relations as to diminish friction, reduce hardships, promote mutual protection, and, at the same time, not increase exposure to internal or external dangers. With such a code formulated, the states, or any number of them, would be competent, under the constitutional provision referred to, to form a compact and legally bind themselves to abide by the rules agreed on. In this way a national board of health could be the instrument of bringing about the enactment of public health and quarantine laws that would operate across state lines, a kind of legislative work that, in the absence of all public health power on the part of the federal government, can be accomplished in no other way.

Did time permit, other fields of usefulness for a national board of health could be pointed out, in which such board could materially advance the sanitary interests of the people of the entire country, and without at all encroaching on the reserved rights of the states.

The executive force proposed for a national board of health is to consist, as shown in the scheme, of a commissioner of health and six assistant commissioners, all of whom, for reasons corresponding with those assigned when discussing the organization of county and state boards, should be made elective by the board itself.

Time does not admit of comment on the duties of this executive force in detail. The commissioner would naturally be the chairman and chief executive officer of the board. The assistant commissioners would be assigned to specific fields of duty, indicated by the designations given them, respectively.

If provided with an arm—such as that urged—for doing public health work the national government would be in a position to render prompt and efficient aid, including both skill and money, to the states in times of pestilence and peril. Take a concrete example: Suppose the existence and extensive prevalence of a formidable disease—cholera for instance—in this city. The city health officer would be here to direct the battle against the disease; the state health officer, I take it, would come to his aid; and the two together would consult as to the measures to be employed for the extinguishment of the outbreak. Suppose, further, that in accordance with the scheme contended for an assistant national commissioner, to whom had been assigned the duty of looking after epidemics, should appear on the scene and offer his help and the financial aid of the general government: would either be declined, should either be declined? The unanimous and constitutional answer would be, no!

Although the hypothetical assistant commissioner would possess no legal authority in this city, yet as sanitary science knows no bounds, but is as wide as the world, any measures he might propose would, if deemed more efficient than those being employed, be gratefully accepted and promptly enforced, thus furnishing an illustration of how, according to the system proposed, city, state and national health officials could work side by side in overcoming a common enemy.

Another example: Two of the biggest and most vital public health questions now agitating the country and claiming the attention of Congress are interstate and maritime quarantine. The removal of friction and hardships as to the former, and the establishment of uniformity and efficiency as to the latter, are the solutions demanded, and properly so, by the profession and the people. All quarantines being either scientific or unscientific, that is, based on justifiable grounds or on panic and fear, some competent and cooperative authority should exist for prescribing the conditions under which a quarantine, either domestic or foreign, should be proclaimed. The members of such a national board of health as that suggested would, by virtue of their connection with the boards of their respective states, occupy positions peculiarly favorable for enabling them to systematize the entire subject of quarantine and to formulate a code of principles and rules that would place it on a scientific and humane basis. Grant that the national board would be without authority to enforce, after having formulated, such a quarantine code, yet if the members of that board should, by virtue of occupying a dual position, be able to secure the enforcement of the measures agreed on by their respective states, the end sought would be none the less certainly, because indirectly, achieved.

The same principle would apply to public health policies of every kind, that is, the state boards would usually accept and enforce the recommendations of a national board, in the councils of which their respective health officials were permitted to participate.

In truth, a national board would focalize the best thought on sanitary questions the entire country could evolve, and would in turn radiate that thought out again, crystallized into well-digested and practical measures for the protection of the health and lives of the people.

Viewing the proposed system in its entirety, it will be seen that, like a living organism, all of its parts would be interdependent and correlated, through which would circulate from center to circumference, and back again from circumference to center, the warm and nutritious blood of altruism, vitalizing, energizing and unifying all of the divisions of the system into one homogeneous and effective whole. With such a system in operation, municipalities, counties, states and the nation could unite their sanitary forces into one aggressive army and, marching under the banner of "preventive medicine," could make war on, and conquer, and destroy, disease in many of its strongest citadels.

The scheme presented is not a visionary one. In so far as it applies to counties and to states, it was conceived and substantially formulated nearly forty years ago by my lamented predecessor in office, Jerome Cochran, the most original thinker and the profoundest philosopher on professional and public health organization that this country or any other has ever produced.

More than thirty years ago the profession of my state accepted the system by adopting constitutions for county and state organization written by Cochran's own hand, which constitutions, with some modifications, stand today as enduring monuments to the foresight and wisdom of their author. Somewhat later the people of Alabama, through their legislature, accepted the principles of the system by embodying them in a code of public health laws.

Since the inauguration of the system just created, the great scourge of the tropics, yellow fever, has never been permitted to enter the country through Alabama's seaport, and four times within the past ten years when adjacent and neighboring states were sorely smitten by this scourge—their people dying or flying, their indus-

tries silenced, and the wheels of their commerce obstructed at many points—Alabama has been safely and serenely protected, her protection being the proudest trophy that could be laid on the tomb of Jerome Cochran.

The scope of "state medicine" is practically boundless. With a complete and cooperative public health system—one extending in logical continuity from counties to nation—the principles of sanitary science could be enforced and taught in every educational institution of the land, from the humblest rural school to the most renowned university, thus securing the sturdiest physical and broadest mental growth and development of which the youth of the country are susceptible; the foul atmospheres of overcrowded workshops could be kept fresh and pure, thereby supplying the toilers with an abundance of that life-giving element without which the best work can not be done; the strength of arms digging out mineral and metallic wealth deep down in the bowels of the earth could be upheld and reinforced; the hygienic rights of helpless victims paying the penalties of crimes in the prisons of the country could be guarded and defended; crowded counting houses, where busy brains are often forgetful of the needs of the body, could be rendered safe and salubrious; our soldiers and sailors could be protected from the ravages of diseases frequently more fatal than the carnage of battle; yea, the light and the teachings of modern sanitary science could illuminate and fortify every home of the land and, like a good angel, could turn away from happy families the untimely visits of the "pale messenger."

These and much more can state medicine do to place the standard of physical manhood and womanhood on a higher, purer and better plane.

SANITATION IN THE CANAL ZONE.*

W. C. GORGAS, M.D.
Colonel and Assistant Surgeon-General U. S. Army; Chief Sanitary Officer, Canal Zone.
ANCON, CANAL ZONE.

Being a working doctor and one not accustomed to addressing audiences, I must ask your indulgence in making the attempt. Indeed, I would never have thought of making this address, except that your dean, Dr. Polk, assured me that some account of our sanitary work at Panama would be acceptable. And I can see that an outline of the sanitary work at Panama might be of use to men just being graduated into our profession, as an illustration of a new avenue of useful work in the way of tropical sanitation that has developed in the last eight or ten years.

Great advances have been made in this line of work in that period, due to important discoveries made just prior to that time, and the English and Americans have done a great deal of useful work in sanitation in their tropical colonial possessions. The discovery that the bite of a certain species of mosquito is the only means of transmitting yellow fever has enabled our sanitary workers in the tropics greatly to improve the health conditions of the whites who are necessarily employed there.

When we took possession of Cuba in 1898, the great sanitary problem was the control of yellow fever. The disovery made in 1901 by the Army Medical Board, composed of Drs. Reed, Carroll, Lazear and Agramonte, after we had been in Cuba about two years, enabled the sanitary authorities to rid that island of yellow fever. The island remained free for three years. I must not neglect to say that Dr. Coles Finlary had deduced the theory that the *Stegomyia* conveyed yellow fever, and he had in many papers steadily maintained that theory since 1881.

The government was then turned over to the Cubans, political discussions arose, governmental administration became more or less lax, and yellow fever reappeared. Last year the United States again assumed control; the same sanitary methods were reapplied and yellow fever has again disappeared. It is now generally recognized that yellow fever can be controlled by sanitary measures based on the knowledge that the *Stegomyia* mosquito alone conveys this disease. This has been demonstrated a number of times in various parts of the western hemisphere.

The control of yellow fever in Cuba was important, not alone for the protection of our own people down there, but more for the protection of the United States against this disease. Cuba is so situated commercially with regard to our gulf coast that, as long as she was infected with yellow fever, she was a constant menace to our gulf states, and to the United States generally, and she actually did give us yellow fever many times. This ability to control yellow fever by simple and inexpensive measures attracted a great deal of attention. After the announcement by the army board of the discovery they had made, our sanitary work in Havana had to be entirely reorganized, in order to adapt it to the conditions made evident by this discovery. It was, of course, of vital importance to us, and after much thought and discussion we evolved plans looking to the carrying out of three classes of work.

First, the rendering of all non-immunes immune by giving them a light attack of yellow fever. In a population such as Havana has, you know the native is not liable to yellow fever, and is spoken of as being immune. The stranger is the only one liable to this disease, and is known as a non-immune.

Second, the destruction of all *Stegomyia* mosquitoes that had, by biting yellow fever patients, become infected with yellow fever.

Third, the destruction of all *Stegomyia* mosquitoes.

We were agreed that the first method—that of rendering non-immunes immune—was the one that would most probably lead to success. After a fair trial, however, we convinced ourselves that yellow fever given intentionally by the bite of a mosquito could not with certainty be controlled, and that if this method was used on a sufficiently large scale to render the non-immune population immune it would cause a considerable number of deaths. We were not warranted, therefore, in pushing this branch of the work.

When we left Cuba after the disappearance of yellow fever, we were inclined to think that results had been obtained principally by the destruction of the infected *Stegomyia*, but further experience at Panama has convinced me that the important element is the destruction of the *Stegomyia* generally. I merely mention this as showing how practical work and experience entirely change well-grounded theories.

We took possession of the canal at Panama in the spring of 1904. The experience of our predecessors, who had built the railroad and attempted to build the canal, was ample to convince us that unless we could protect our force against yellow fever and malaria we

* Address to the graduating class, 1907, in the Cornell University Medical College.

would be unable to accomplish the work. Such sanitary measures, then, as would control these two diseases, were the necessary preliminaries toward starting the construction of the canal. From the former records of the work there, we could see that if we could control these two diseases we could keep our forces in about as good condition as if they were at work in the United States. The conditions on the isthmus were radically different from those in Havana. At Panama we have the canal stretching north and south for fifty miles, with good-sized towns, Panama and Colon, at each end. About half of the population of the zone is concentrated in these two towns, and the other half, consisting principally of laborers, is scattered along the fifty miles of canal. From our experience in Cuba, we could see that the question of yellow fever pertained to these two towns, and was much the same problem as we had faced in Havana. We knew that if we could rid these two towns of yellow fever the laboring forces living in the country districts along the canal would very easily be freed from infection, but the question of protecting from malaria this force of 40,000 people scattered along the line of the canal through a country district was something with which, so far, we had had no experience.

I shall not discuss the work of the sanitary department generally, but just that directly pertaining to the control of malaria and yellow fever. About three-fourths of the expenditures of the sanitary department have no very intimate relation to the control of these diseases, but pertain to the care of the sick, disposal of night soil, disposal of garbage, examination of food supplies, and kindred matters pertaining to general conditions. We concentrated our energies at first on the question of yellow fever, though the work along all lines was pushed as much as possible. We took possession of the canal zone in May, 1904, and the last case of yellow fever occurred in December, 1905; that is, it took us about sixteen months to get rid of yellow fever. In Havana, we commenced special yellow fever work in September of the same year; that is, it took us seven months to get rid of the disease. I was chagrined and disappointed at this lack of as prompt results at Panama as I had expected and hoped for.

During 1905, while we were having yellow fever, our force on the isthmus was much demoralized thereby. It was difficult to get men to come down, and when they did come they were generally panic stricken and left us. This fear affected all ranks of employés from the highest to the lowest, and, while there were hundreds of exceptions and plenty of plucky men who were not affected by the prevailing panic, we could readily see that if the conditions as they existed in 1905 were to continue the canal would never be finished. I think I can look back now and plainly see the causes that prevented our work from being as prompt at Panama as it had been at Havana.

At Havana we were under military rule, with only one man, the governor general, to consult, and this man, fortunately for us, one who had had years of training as a doctor and who was thoroughly competent to judge fairly all sanitary matters—General Wood. The sanitary department had been established in Havana and had been running some two years when the yellow fever work was commenced. The department was, therefore, thoroughly organized in all its branches, and it took simply an order from the central office to turn all its energies in any given direction.

In Panama there was an absence of all these conditions. The authority was not so concentrated, and the department had to be built up from the beginning, with an entire lack of personnel and supplies of all kinds and the machinery for getting them, and, in addition, we were seven days' sail from our base of supplies. We foresaw these conditions to a considerable extent when we started and endeavored to meet them as far as possible.

From our experience in Havana we had concluded that the principal element in our success there was the destruction of the infected mosquitoes, not laying enough stress on the important part played by the destruction of the non-infected *Stegomyia* mosquitoes, which was pushed along at the same time. We hoped that in small areas, such as were covered by the cities of Panama and Colon, in a few months we could kill off all the infected mosquitoes, but we found that this was not successful. With the myriads of *Stegomyia* breeding everywhere in these towns, many mosquitoes would become infected from every man sick with yellow fever, and that a certain number of these mosquitoes would always escape our fumigating brigades. It would be impossible to fumigate more extensively than we did in the city of Panama in 1905. We had about four hundred men engaged in this work, and they went over the whole town three times, fumigating every house in the town, besides fumigating every block each time a case of yellow fever occurred in that block. In this work we used something like 200,000 pounds of pyrethrum and 400,000 pounds of sulphur, besides a large quantity of other fumigating materials.

The mosquito work consists in doing away with all breeding places of the *Stegomyia calopus;* that is, screening and covering every water receptacle in the city so that mosquitoes can not breed. Such work necessarily takes time to show results, and it was well on into 1905 before the *Stegomyia* were so decreased in numbers as to allow our fumigating processes to be effective.

Malaria being transmitted by the *Anopheles* mosquito, we endeavored to stamp out this disease by entirely different methods. The *Anopheles* breeds in clean water where grass and algæ grow; it is, therefore, a mosquito almost altogether of country districts. It is not much of a traveler, in general not flying further than one or two hundred yards. Therefore, if we could destroy its breeding places within two hundred yards of our camps and villages we would have protection for our laborers along the line of the canal. We did not attempt to do anything with the swamps and breeding places which were at a greater distance than this from the camps and villages and dwelling houses.

At the same time we screened all houses with wire netting, urged the people generally to use mosquito bars, explaining the object to them, and also furnished quinin, advising that three grains be taken every day. This was done with the expectation of having the men in such condition that the parasite of malaria would not thrive in the blood when introduced. By far the most important of these measures is that of destroying the breeding places, and this is successfully done by surface and subsoil drainage. This greatly decreased the number of breeding places, but with our tremendous rainfall and luxuriant tropical vegetation the ditches themselves would gradually fill with grass and would have to be cleaned out about every two weeks to keep them useful and to keep the mosquitoes from breeding in them. This was a heavy expense. We found it very much

cheaper to concrete the ditches, so that the grass would not grow.

We are now subsoiling wherever we can. This seems to be the ideal method of *Anopheles* extinction. The title drain is put in, covered with broken rock, and, if desired, this is covered with soil. This leaves a perfectly smooth surface, dry, and giving no opportunity whatever for the mosquitoes to breed. Even with a concrete ditch it requires considerable work to keep it swept out so that small pools will not form where mosquitoes may breed.

We think now that we have successfully accomplished the objects with which we started in three years ago—the control of yellow fever and malaria. We have had no yellow fever anywhere on the isthmus for more than a year. We believe that in the towns of Panama and Colon the *Stegomyia* have been reduced in numbers, in fact, almost exterminated, that yellow fever would not spread if introduced. We, however, maintain a rigid quarantine against the infected points around us and thus endeavor to prevent the introduction of infection.

Malaria has been so controlled that the sick rate of our total force in the month of April, 1907, was less than seventeen per thousand; that is, out of every thousand men at work on the canal we had on an average during the month only seventeen sick in hospitals each day. Among 6,000 Americans in the employ of the commission, including some 1,200 American women and children, the families of these employés, we have but little sickness of any kind, and their general appearance is fully as vigorous and robust as that of the same number of people in the United States.

During the year 1906 our death rate from disease among American employés was less than four per thousand. We believe that we have demonstrated that the tropical diseases, yellow fever and malaria, can be entirely controlled in the Canal Zone, and will not interfere with the construction of the canal. Of course, other problems may arise, in fact have arisen, but they are not of such a character as to interfere materially with the work.

For the last sixteen months pneumonia has been very fatal among our negro laborers, being confined almost entirely to this class of labor. It affects the whites very seldom. The disease seems to be on the decline now, and I look on it as epidemic in character, a good deal as it occurs in New York and Chicago. We are endeavoring to meet this by making the general sanitary conditions of our laborers better with regard to food, clothing, and so forth.

I am inclined to think that the advances made in recent years in tropical sanitation will have a much wider and more far-reaching effect than freeing Havana of yellow fever or enabling us to build the Panama Canal. I think the sanitarian can now show that any population coming into the tropics can protect itself against these two diseases by measures that are both simple and inexpensive; that with these two diseases eliminated life in the tropics for the Anglo-Saxon will be more healthful than in the temperate zones; that gradually, within the next two or three centuries, tropical countries, which offer a much greater return for man's labor than do the temperate zones, will be settled up by the white races, and that again the centers of wealth, civilization and population will be in the tropics, as they were in the dawn of man's history, rather than in the temperate zones, as at present.

Original Articles

DIGESTIVE DISORDERS IN PULMONARY TUBERCULOSIS.*

JAMES R. ARNEILL, M.D.
DENVER.

During the past ten years I have been greatly interested in enteroptosis and have been on the lookout for this condition in my patients of all classes. The frequency of this anatomic peculiarity in slender patients, suffering with malnutrition, psycho-neuroses and tuberculosis, is decidedly impressive. Most examinations of tuberculous patients do not include an examination of the abdomen. If one palpates carefully for the kidneys, Stiller's sign, and the contracted colon; tests the succussion sounds in the stomach, or inflates it and the large intestines, he will find in a surprising number of cases evidence of enteroptosis. Woods Hutchison remarks that those people who are unusually tall are apt to develop tuberculosis. To my notion, it isn't a question of tallness alone, but of tallness combined with slenderness. Such people are very frequently enteroptotic and are decidedly prone to suffer with malnutrition, psycho-neuroses and all sorts of functional disorders of the stomach and bowels. They are usually below par and anemic, always ailing and taking tonics, and eternally suffering with digestive complaints and a bizarre collection of nervous disorders. A great many of our tuberculous patients are duplicates of these ill-nourished, anemic, psycho-neurotic, constipated, mucous colitic, dyspeptic, enteroptotic wrecks, except that in addition there are present a few symptoms dependent on the diseased lung, such as fever, cough and expectoration. The treatment most effective in one is often very useful in the other. This consists essentially of fresh air, absolute rest in some, extremely generous feeding, attention to the skin and bowels, optimistic suggestion, and isolation, modified isolation, or diversion and exercise. In many cases it will be wise to employ medicine, such as increasing doses of tincture of nux vomica up to forty or fifty drops three times daily before meals, iron in the form of Blaud's mass, arsenic, sometimes hydrochloric acid, and at other times alkalies, etc. These patients are often suffering from the effects of starvation. Eliminating one article of food after another, they finally limit themselves to toast and tea or malted milk.

The chemistry of the stomach may be normal, or it may show a hypo- or hyperchlorhydria, or may vary from day to day. The mucous membrane is likely to be hypersensitive; in fact, the entire nervous system is usually oversensitive. There may be diminished motility of the stomach. This class of cases is usually helped by Eddyism or psychotherapy; optimistic suggestion and persuasion should occupy a prominent place in the treatment, to dissipate the various phobias. If need be, analyze the stomach contents in order to assure the patient that she is able to digest a generous diet and that only her fears prevent her doing so. Considerable distress may be present at first, but if she grins and bears it, presently, as a result of improved nutrition, the motor and secretory powers of the digestive organs increase, constipation is relieved, nerve tone improves, the nervous system becomes decidedly less sensitive, the vicious circle

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

is broken up and the invalid gets well. In the consumptive the cure must be prolonged and modified to meet conditions as they arise. Frequently a change of surroundings will accomplish all this.

CASE 1.—An enteroptotic young woman, extremely neurotic, with a small healed lesion in the right apex, and a healed tuberculous hip, was seen in consultation in the Boulder Sanitarium. She had a markedly prolapsed stomach, suffered with frequent retention of food, complete loss of appetite, and greatly diminished digestive power (achlorhydria). A large quantity of albumin but no casts were found in the urine. There was marked emaciation; she was practically a bedridden, nervous wreck. A nurse was in constant attendance. She had been in Boulder for two years. It was deemed wise to send her to the Oakes Home, Denver. As a result of the change and the use of the Rose bandage, she began to improve almost immediately. She became decidedly less nervous, the stomach seldom bothered her, the appetite improved, and she gained twenty pounds in weight, and enjoyed good health. This continued for some months, when she again became psychoneurotic. Beginning to have frequent attacks of digestive disorders, with cough, slight fever, loss of appetite, loss of weight, again she became a nervous wreck as before. It seemed wise to try another change, so she was sent to Colorado Springs. Again, in a few weeks, she showed marvelous improvement; appetite improved, bowels became regular, digestion excellent, cough disappeared, stomach emptied itself, and the patient gained twenty-five pounds in weight, and felt better than she had done in years.

Notwithstanding the remarkable work done along the line of opsonic therapy, our sheet anchor in the cure of tuberculosis must be the nutrition of the patient. Here nutrition is meant to include resisting power and antibacterial power. Gain in weight and increase in adiposity are only a part of nutrition. Rest, exercise and fresh air and change of climate to higher altitudes are all of value because they increase appetite and oxidation. They give the patient the capacity to assimilate large quantities of food, increase his nutrition and thus his resisting power to the disease. Tuberculin is of value only when it increases the antibacterial power of the patients' tissues. It can never take the place of hygienic and digestive measures, but should simply supplement them, if it seems wise to use it. All medication which persistently interferes with appetite, elimination and assimilation, must necessarily do harm. Symptomatic medication is often pernicious. Probably more harm than good has been done with medicine in the treatment of this disease. However, when used judiciously as a supplement to hygienic measures, untold benefit has resulted.

The treatment of a case should be instituted on broad lines, its object being to get at the underlying causes of the trouble and to improve nutrition. One should hew to these lines with tenacity and vigor, seldom yielding to the siren voice of the innumerable symptoms which are begging for relief.

Because of the vital importance of nutrition in combating the disease it is essential that we get as much good work as possible out of the digestive organs; consequently if digestive disturbances are present they should be corrected. Likewise we should attempt to forestall their development. It is remarkable how seldom in our routine work among consumptives, both in private and sanitarium practice, careful investigation and study of digestive conditions are carried on.

Analyses of stomach contents, study of the motor power, size and position of the stomach, the careful study of the stools following or independent of test diets, have been made chiefly in hospitals by investigators who are doing original research work, not by the practitioner for the purpose of helping him treat his cases. Yet if the careful investigation of digestive conditions is of importance in the average dyspeptic, it is of even more value in the consumptive dyspeptic.

It is remarkable, however, that we do not have more digestive disturbances in this disease, when one considers the combination of over-feeding, under-exercise, fever and the various evidences of toxemia present in the consumptive. But with a high temperature he often consumes and digests, without discomfort, three large meals and several small ones each twenty-four hours.

The average case of indigestion in the consumptive can be successfully treated along symptomatic lines. Bitter tonics, hydrochloric acid and ferments, alkalies and antifermentatives are used as the symptoms indicate. Occasionally one will find it of decided advantage to give test meals, analyze them and study the motor power of the stomach and the position of the stomach and bowels. During the past three years and eight months I have analyzed the stomach contents in only thirteen of two hundred and thirty private cases of tuberculosis. It is very seldom, indeed, that I have occasion to practice lavage.

In the majority of cases requiring treatment I have been guided by the symptoms and by the experience of numerous workers in this field. In advanced tuberculosis one habitually prescribes hydrochloric acid and ferments because numerous analyses have shown them to be usually absent or reduced. Occasionally one is absolutely wrong in his guess, learning that what he supposed to be a hypochlorhydria with fermentation was a hyperchlorhydria.

In a general way, my results correspond with those of previous investigations, namely, that in incipient tuberculosis the chemism is about the same as in the average person, either normal or hyper or occasionally hypo.

In cases of moderate advancement there is a tendency to hypochlorhydria, though we may find some cases of hyperchlorhydria.

In advanced cases there is usually diminished or absent hydrochloric acid and pepsin, with diminished motor power.

1. Miss G., incipient case, healed, enteroptotic, psychoneurotic, with hypertrophied rectal valves. Free HCl, 0; total acidity, 33.

2. Mrs. W., slight involvement of long standing, enteroptotic, psychoneurotic, suspected hypochlorhydria, but found free HCl, 32; total acidity, 56.

3. Miss P., incipient and quiescent, enteroptotic, psychoneurotic. Free HCl, 24; total acidity, 50. Greatly helped by Rose bandage.

4. Mr. W., incipient, healed; free HCl, 28; total acidity, 50.

5. Mr. W., advanced, hopeless. Free HCl, 10; total acidity, 20. Diminished motility. This patient had a mass in appendix region.

6. Mrs. R., incipient, healed; enteroptotic and extremely neurotic. Free HCl, 50; total acidity, 200.

7. Mr. F., enteroptotic, moderate severity, relapsed after a number of years. Free HCl, 32; total acidity, 54.

8. Mr. F., incipient, healed, gastroptosis. Free HCl, 42; total acidity, 88.

9. Miss E., moderately advanced. Free HCl, 10; total acidity, 60. Persistent diarrhea; stools showed tubercle bacilli; bandage worn. Died a few months later.

10. Mrs. K., moderately advanced; marked enteroptosis. Free HCl, 20; total acidity, 36.5. Persistent diarrhea and stools showed tubercle bacilli.

11. Mrs. B., incipient. Free HCl, 50; total acidity, 70.

12. Mr. L., healed, incipient; markedly neurotic; probably

gastric ulcer. Free HCl, 26; total acidity, 68. Riegel test dinner, free HCl, 20; total acidity, 90.

13. Miss D., healed; markedly enteroptotic and psychoneurotic. At times greatly diminished motor power, and four different analyses showed absence of free HCl and hypopepsia. Greatly relieved by Rose bandage.

Of the thirteen patients whose stomach contents were analyzed one or more times, nine had incipient or arrested tuberculosis. Of these seven showed a hyperchlorhydria and two showed an achlorhydria. One moderately advanced case showed normal findings and one a hyperchlorhydria. Two advanced cases showed a hypochlorhydria.

The fact that the motor power is often diminished in advanced cases and in some incipient ones is an argument against giving frequent large meals to these particular patients. The stomach must have an opportunity to empty itself and to rest.

I have found the application of adhesive plaster bandages, according to the methods of Rose or Rosewater, at times extremely useful in enteroptotic cases, with diminished motor power and associated constipation or diarrhea. Patients, however, tire of wearing the adhesive bandages; frequently they can be discarded following improvement or recovery. In case such a support is needed for many months or years Glenard's La-Nea corset belt will be found very useful and convenient.

The following case illustrates the importance of a careful stool examination in diarrheas of tuberculous patients:

Subsequent to marked improvement in a closed sanitarium a patient developed serious gastrointestinal symptoms. There was loss of appetite and persistent diarrhea, with blood and mucus in the stools. The patient had passed from my hands long before this and his physicians made a tentative diagnosis of tuberculous enteritis. Cachexia and malnutrition developed, and the lung lesions became active. The case looked hopeless. By accident the patient discovered the segments of a tapeworm in his stool. Following treatment the parasite was expelled *in toto*; all untoward symptoms speedily disappeared and in a few months the patient more than regained all lost ground, and now is in excellent condition.

Occasionally our tuberculous patients must be operated on for appendicitis, cholecystitis and pyloric obstruction with dilated stomach. Such timely surgical intervention may be the means of turning the tide toward eventful recovery. If time permitted, illustrative cases could be cited.

The dangers of forced feeding are overemphasized by many. That there are real dangers, however, can not be denied.

The production of indigestion and bilious or autointoxication attacks is a frequent sequel. Pathologic obesity occasionally results. Both conditions are fraught with risks for the consumptive. The dangers of indigestion are apparent, as with a single attack the patients may retrograde much in pounds and general nutrition and a quiescent lesion may as a result be stirred into activity.

The dangers of obesity are not so evident, as with many it is thought to be the end and aim of treatment.

The motto of the physician should be to persevere in hyperalimentation till the nutrition has reached an eminently satisfactory point—at the same time guarding against the production of indigestion and pathologic obesity, with its attendant fatty heart and diminished functional capacity.

Bona fide opsonic therapy is possible for an extremely small per cent. of the vast army of consumptives, but tuberculin therapy—controlled by clinical standards and not by the tuberculo-opsonic index—is possible for a large per cent. of cases, and may prove a wonderful boon to the poor.

Let us have early diagnosis (a very rare thing) and then our simple methods of rest, controlled exercise, fresh air and generous diet will prove successful for most patients, to whom these measures are possible.

In the language of Bruce: "Do not sacrifice nutrition for the temporary advantage of relief from distress."

"The successful treatment of tuberculosis chiefly depends on intelligent guidance of spontaneous resistance and recovery."

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

DOES THE OPACITY OF INCIPIENT CATARACT EVER REGAIN TRANSPARENCY?*

LEARTUS CONNOR, A.B., M.D.
DETROIT.

Our problem is not the mere restoration of vision in a cataractous eye, as this may occur from absorption of the cortex or in traumatic opacity; nor is it the clearing of a diffuse cloudiness of the lens, as this has been observed to follow correction of eyestrain. It is rather the partial or complete transformation of opaque striæ with diffuse opacity into clear lens. Such opacities are seen in the lenses of individuals past middle life, and in some cases are associated with such general diseases as diabetes, Bright's disease, syphilis, and arteriosclerosis; some with uncorrected refractive defects, and others with as yet undefined conditions.

Progress, in the non-surgical management of incipient cataract, calls for the settlement of two questions:

First. Do the opaque striæ of incipient cataract ever become transformed into transparent lens?

Second. What are the conditions under which transformation occurs?

If the striated opacity of incipient cataract ever becomes transparent it will do so again under the same conditions and a basis be established for intelligent management of such cases. As yet we know little of the conditions associated with the development of senile cataract and less still of those attending its transformation into clear lens; both conditions are closely related to lens nutrition, and may be either within the eye or outside. Those within, like chorioiditis, may defile the lymph by which the lens is nourished, or disturb the action of capsule cells or lens fibers; or derange the intraocular circulation of blood and lymph. Those without either disturb the quality or quantity of blood and lymph currents to and from the eyeball, or the innervation, as in diabetes, renal disease, and arteriosclerosis. In the cases reported, attention was constantly given to the study of these etiologic factors and best results were noted in the replies of such correspondents as worked along similar lines.

Dr. S. D. Risley's papers in the *University Medical Magazine*, 1889, and Transactions of this Section in 1891, clearly show the close association of incipient cataract with a low grade of chorioiditis and refractive defects. The correction of the latter markedly relieved the intraocular and extraocular disturbances save the lens

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

striæ. Hence, Dr. Risley proved that in some cases eye-strain caused chorioiditis, and this in turn incipient cataract, a most helpful generalization. But the striæ still remained. Can nothing be done for them in their early incipiency? Must they continue to multiply till the changes in the lens permit of extraction?

These queries led me to note the lens appearance in incipient cataract with more care than formerly and to add, to the word record, coarse diagrams of the lens striæ, their position, length, number, relationship to each other, diffuse opacity, dots, etc.

These records, taken at intervals of months or years, made evident any considerable change in the striæ and their relationships. After a time I observed a diminution of stria and finally it faded away, a most unexpected phenomena. What I had previously regarded as impossible had actually taken place under circumstances that precluded doubt.

Later a similar change was noted in another case and another till the list increased to six, brief abstracts of which are given, so far as related to the question before us.

To this list I have added a case of diabetic cataract, because the physician who first saw it said that it exhibited the striated form of incipient cataract, though the striæ were obliterated before the patient came under my observation. In these abstracts of cases the time limit compels the omission of all history of clinical conditions under which the lens capacity developed or the changed conditions under which the lens regained transparency.

CASE 1.—Mrs. R. M., Adrian, Mich., a widow, aged 50, was referred to me by Dr. J. H. Reynolds for defective vision on Feb. 10, 1891. She was fleshy, of a nervous temperament and troubled with indefinite intestinal disorders. She complained of smarting, blurring and itching on using her eyes. Moderate blepharitis and conjunctivitis were present.

Treatment.—Ophthalmoscopic examination was negative except for the usual appearances of hyperopia. Vision of each eye was 8/200 increased to 20/30 by plus D. 2.00 S.; and Jaeger 1, with plus D. 5.50 s. in right and plus D. 6.00 s. in left eye.

Subsequent History.—On Oct. 17, 1896, she returned saying that recently the old discomfort in her eyes had returned. Her vision was 10/200 in each eye increased to 20/30 by plus D. 3.50 S.; and Jaeger 1, by plus D. 6.50 S. in each eye.

Oct. 13, 1905: Nine years after the previous visit, she again returned complaining of eye distress and saying that it had existed several months. His vision was now 12/200 in each eye increased to 20/30 by plus D. 4.50 S. in right and plus D. 4.00 S. in left eye. A new feature presented itself by oblique illumination and ophthalmoscopic study, viz., dark striæ in each lens. In the right lens they reached from the inner border almost across the pupil area; the left lens presented two similar striæ in the corresponding position. All striæ were shaded into clear lens by translucent opacity. Diagrams were made of these striæ as well as word description.

Oct. 4, 1906: Nearly one year later, no trace of these striæ could be detected by either the ophthalmoscope or oblique illumination. The regaining of transparency by the lenses had been perfect. Her vision was now 20/200 with either eye; increased to 20/20 by glasses ordered in 1905, Jaeger 1 was easily read by reading glasses of the previous year. During the fifteen years she was under observation vision increased from 8/200 to 20/200; with correcting glasses from 20/30 to 20/20. This latter change occurred during the year in which the striæ vanished.

Thus the net result was the yielding of lens striæ in both lenses to transparency and the gaining of normal vision for distance, as well as in reading, by proper glasses.

CASE 2.—Mrs. D. C., aged 60, was first seen June 20, 1898, for failing vision. She was a widow, fleshy and a chronic sufferer from so-called rheumatism and intestinal disorder. Vision of each eye was 20/200, increased to 20/50 by plus D. 1.50 S.; Jaeger 1, with plus D. 3.50 S.

Examination.—Ophthalmoscopic examination showed a dark stria quite crossing the right lens almost vertically and seven shorter striæ extending from the lower and inner border of the lens almost to its center. In the left lens was seen a large stria extending from upper to lower border of the lens slightly inclined from the vertical, and six smaller striæ beginning at the lower and inner border of the lens and reaching near the center of the lens. Considerable haziness connected the striæ with each other and adjacent clear lens. Rough drawings of these appearances were made on the record, in connection with the written description.

Subsequent History.—About twice a year these eyes were restudied and descriptions and drawings made of the lens appearances. These show a general diminution of the striæ and associated opacity, so that on March 4, 1907, there was no trace of the long stria in the left lens, and only the extreme lower end of one of the shorter ones could be seen by turning the eye downward and inward. In the right lens one long stria had entirely disappeared, and another all but a trace; of the thirteen smaller striæ only the lower extremities of three remained, ten having entirely disappeared. On same date V. O. D. with glasses was 20/40 plus one and Jaeger No. 1; V. O. S. with glasses was 20/30 and Jaeger 1.

Though this patient was kept under conditions favoring the nutrition of the lens, there was no expectation of securing more than a retardation of the growth of the lens opacity. Hence the evidence that the striæ actually had changed into clear lens was a surprise. Especially startling was the disappearance of the large stria in the left lens during the first year. The other changes were less rapid.

CASE 3.—Mrs. L. N., aged 65, on Oct. 20, 1903, sought relief from failing vision. She was a widow, slender, of nervous temperament and long a sufferer from chronic intestinal disorders.

Examination.—Vision of each eye was 20/100; the right increased to 20/70 plus D. 1.00 S.; the left to 20/30 by plus D. 1.50 S. She could read Jaeger 1, right with plus D. 4.00 S.; left with plus D. 4.50 S. The right lens showed six long striæ reaching from the lower and outer border much beyond the center of the pupil. Numerous other short striæ filled much of the space between the longer striæ, and shading all was a diffuse haziness. The left lens exhibited four striæ extending from the outer and lower border to near the center of the lens, adjacent to which were numerous minute dots and diffuse opacity.

Subsequent History.—She was restudied two or three times yearly, and the conditions of improved lens nutrition were adjusted with care. On Jan. 4, 1907, at the end of a little more than three years, her condition was: Vision right eye, 20/200; with glass, 20/100. Vision left eye, 20/100, increased to 20/20 and Jaeger 1, with glasses. In the right lens two of the six striæ had vanished, but the other four had increased, as also the irregular dots and diffuse opacity. In the left lens the four striæ had disappeared, except the lower third of one stria, which was only to be seen with difficulty; the diffuse opacity and dots had vanished, leaving practically a clear lens.

Remarks.—Thus the net results of three years was an increase in the opacity in the right lens, but practical clearing of the left.

CASE 4.—On July 24, 1906, Mrs. M. A. C., aged 68, sought relief from failing sight. She was a widow, stout and subject to rheumatism and intestinal infections. About three months before consulting me she had noted difficulty in seeing, and a couple of days previous a curving of straight lines with the right eye.

Examination.—Vision of right eye was 20/200, increased to 20/70 by plus D. 1.00 C., axis ninety degrees and plus D. 0.75 S. Vision of left eye was 20/50, increased to 20/40 with plus D. 0.75 C., axis sixty degrees and minus half a diopter sphere. Plus three and one-half diopter sphere added to the cylinders in the right eye gave vision Jaeger 6; in left Jaeger

1. A recent choroiditis was noted in the right fundus. The right lens exhibited seven small striæ reaching from the lens border below to near the center, and three from above. In the left lens were two small striæ from the lower border of the lens to near the center. About the striæ in each lens were a few dots and a considerable diffuse opacity. A drawing of these was added to the word description.

Dec. 11, 1906: The vision of the right eye was 20/40 and left 20/30 without glasses. The right fundus lesion was less troublesome. The striæ in the right lens were diminished more than two-thirds; in the left more than three-fourths.

Net result of about four months was: Striæ in right lens diminished two-thirds; in left, three-fourths.

CASE 5.—On Oct. 17, 1906, Mrs. S. E. M., aged 57, Elmira, N. Y., sought relief from failing vision. She was a widow, large, fleshy, and long a sufferer from intestinal disorders.

Examination.—Vision of each eye was 20/70, increased to 20/50 by correcting glasses for a slight hyperopic astigmatism, with the rule. The right lens presented a long stria, crossing it vertically, with adjacent cloudiness. The left lens showed a stria crossing it with the top slightly inclined to the left; both striæ were shaded by considerable cloudiness.

Subsequent History.—On Nov. 29, 1906, a little more than a month after the first visit, vision of each eye was 20/30 minus two letters without glasses; 20/30 plus three, with correcting cylinders in right eye one and one-quarter, against the rule. left eye, three-quarter diopter with the rule. A comparison of the diagrams made on the two dates showed that the stria of the right lens had disappeared, and in the left greatly diminished.

CASE 6.—On Feb. 26, 1907, Mrs. S. M., a widow, aged 58, sought relief from distress on using her eyes.

Examination.—V. R. E. was 20/70 and was not materially increased by correcting the mixed astigmatism. V. L. E. was 20/50, increased to 20/40 by correcting the mixed astigmatism. With each eye she was able to read only Jaeger 14; with correction of refraction she could only read Jaeger 4. A careful study of the lenses, by oblique illumination and the ophthalmoscope showed in the right lens an opacity from below upward to the center of the lens, containing five large striæ and between them five smaller striæ. In the left lens were one large stria and four smaller ones.

Subsequent History.—Diagrams and descriptions were made of these, and on March 14 new observations showed that the following changes had taken place:

Right lens had lost four large striæ and three small ones, the remaining ones being far less pronounced. The left lens showed that two of the smaller striæ had vanished. Vision of R. E. had changed from 20/70 to 20/30; vision of left eye from 20/50 to 20/30 plus four letters; right eye Jaeger 2, and left eye Jaeger 1 with corrected refraction.

CASE 7.—On April 23, 1877, H. R., Jackson, Mich., aged 45, was referred to me by the late Dr. J. A. Brown, for blindness. He was large and fleshy, had always been a voracious eater, and took little exercise. About a month before coming to me his physician had detected diabetes, and shortly thereafter the patient's sight failed rapidly, until he was only able to distinguish light from darkness. There was no red reflex, only a bluish gray lens to be seen by either oblique illumination or the ophthalmoscope. His physician said that the lenses were markedly striated when first observed.

After three months' treatment a second examination showed a perfectly clear lens in each eye, with normal fundus. His physician afterward told me that he faithfully followed directions and retained perfect sight until his death a few years later from pneumonia.

Thus in six cases of striated incipient cataract five lenses became quite transparent, one lens lost seven striæ, one lens lost two striæ, one lens retained a trace of a stria, in two lenses the striæ had diminished two-thirds, one lens became slightly opaque, and one more opaque. In the diabetic case both lenses became transparent and remained so till the patient's death.

In all cases the lens opacity was in its earlier stage, and so more was to be hoped from a radical change of its nutritive conditions. The patients were tractable and both able and willing to adjust themselves to prescribed conditions.

As these observations were out of the ordinary, on Dec. 19, 1906, a letter of inquiry was sent to a number of ophthalmic surgeons asking if they had seen "the opacity of incipient cataract regain transparency," attention being directed to the presence of striæ in the opacity. To this were received fifty-five negative answers; fifty-seven negative with comments, and thirty-four affirmative replies.

The replies are given in three groups:

First. Those reporting cases of opacity with opaque striæ in lenses that regained transparency, in whole or part.

Second. Those reporting cases of opacity of the lens in which the lens regained transparency—striæ not being mentioned.

Third. Those reporting cases of partial restoration of lens transparency.

It is regretted that lack of space forbids giving the verbatim answer of each correspondent, as such answers form a suggestive photograph of ophthalmologic thought on this question:

CASES OF INCIPIENT CATARACT WITH STRIÆ THAT REGAINED TRANSPARENCY.

CHARLES A. OLIVER, Philadelphia, three cases.
GEORGE F. SUKER, Chicago, two cases.
J. ELLIOT COLBURN, Chicago, seven cases.
H. V. WÜRDEMANN, Milwaukee, Wis., three cases (two entirely, one partially).

As samples of the group, the following are given in the writers' own language:

J. W. WRIGHT, Columbus, Ohio, says: "I have seen one case of incipient cataract regain transparency. In 1886 I examined the right eye of Mr. W., aged 74, for defective vision, and found a well-marked median cataract (incipient) with striæ also well marked, branching out in different directions. In about two years I again saw the patient when the lens had again regained transparency, and there was not the very least indication with a minute ophthalmoscopic examination that the lens had in any manner ever been affected. No treatment had been used."

G. ORAM RING, Philadelphia, says: "As regards the disappearance of the striæ of incipient cataract, I have only seen one case in which I could positively demonstrate an absolute disappearance of all the opacity. This case was seen about ten years ago and occurred in a lady about 40 years of age, who had a pronounced neuroretinitis, the summit of each disc being swollen to about 6. D. The vision sank from practically normal to the mere ability to count fingers at a few inches from the eyes. . . . Dr. W. F. Norris . . . saw the case in consultation with me. In expressing his opinion regarding the prognosis, Dr. Norris referred to several incipient striæ in the left lens and gave a questionable prognosis. Under specific medication—unguentum hydrargyri—followed by a long course of potassium iodid—the vision rose to 20/20 in O. D., and 20/25 in O. S. The case has remained under my care at certain intervals since that time. The vision has remained practically normal and the lens entirely transparent."

W. H. WILMER, Washington, D. C., says that he has seen one lens opacity give way to transparency. "Patient 51 years; good health; seen Nov. 3, 1904; had noticed dimness of vision in left eye three or four weeks previous to visit. Right eye vision with corrected refraction 20/20; left eye vision with corrected refraction 20/30. Lenticular opacities reached nearly to center of pupils from the lower and inner segment of each lens. Fundi and media normal. No treatment other than correction of refraction. May 31, 1905, vision normal in each eye; striæ in right lens unchanged; that in left can not be seen."

The following have been taken from medical journals:

AUGIERAS: *Ophth. Review*, Vol xxiv, p. 50, abs. from *L'Opth. Provincial*, one case.

ADOLPH ALT: *Amer. Jour. Ophth.*, Vol. xxiii, p. 297, one case.
J. ELLIOT COLBURN: THE JOURNAL A. M. A., June 4, 1887, three cases.
Total: Ten observers report twenty-three cases.

CASES OF LENS OPACITY IN INCIPIENT CATARACT, REGAINING TRANSPARENCY—STRIÆ NOT BEING NOTED.

CHARLES S. BULL, New York, from twenty-five to thirty cases.
FRANCES DICKINSON, Chicago, one case.
MARK STEVENSON, Akron, Ohio, about five cases.
S. O. RICHEY, Washington, D. C., two cases detailed and a number of others mentioned.
F. P. CAPRON, Providence, R. I., four cases.
FRANK C. TODD, Minneapolis, "more than one case."
JOHN CHASE, Denver, one case.
L. E. MAIRE, Detroit, one case.
H. BERT ELLIS, Los Angeles, Cal., three cases.
H. B. CHANDLER, Boston, "several cases."
A. E. PRINCE, Springfield, Ill., one case.
A. D. MCCONACHIE, Baltimore, two cases.
C. M. CULVER, Albany, N. Y., three cases.
S. G. DALBANY, Louisville, Ky., "a few cases."
W. H. SNYDER, Toledo, Ohio, "many cases."
IRA J. DUNN, Erie, Pa., two cases.
HIRAM WOODS, Baltimore, "several cases."
W. J. PARK, Harrisburg, Pa., "have seen lenticular opacities disappear."
W. L. DAYTON, Lincoln, Neb., one case.
C. W. HAWLEY, Chicago, one case.
The following are taken from medical journals:
J. SEEGAN, two cases, and T. TANNAHILL, one case; both reported by E. Nettleship, Trans. Ophth. Soc. of United Kingdom, Vol. v.
R. KALISH: *Med. Record*, March 20, and Dec. 20, 1890, five cases.
NICATI: *Ophth. Rev.*, Vol. xviii, from Berlin *klin. Wochschr.*, Oct. 31, 1898, one case.
L. DE WECKER: *Amer. Jour. Ophth.*, Vol. xxii, p. 204, one case.
ADOLPH ALT: *Amer. Jour. Ophth.*, Vol. xxiii, p. 296, one case.
TATHAM THOMPSON: *Royal Lond. Hosp. Reports*, December, 1890, one case.
Total: Twenty-six observers report about eighty-four cases.

CASES OF PARTIAL RESTORATION OF LENS TRANSPARENCY IN INCIPIENT CATARACT.

LEWIS S. DIXON, Boston, five cases.
C. H. BEARD, Chicago, two or three cases.
A. J. IRWIN, Los Angeles, Cal., one case.
P. JORDAN, San José, Cal., one case.
L. L. ALLEMAN, Brooklyn, five cases.
C. F. CLARK, Columbus, Ohio, one case.
E. E. HOLT, Portland, Maine, "a few cases."
W. E. BRIGGS, Sacramento, Cal., two cases.
S. C. AYRES, Cincinnati, two cases.
DAVID WEBSTER, New York, two cases.
B. F. FRYER, Kansas City, Mo., one case.
DR. RYERSON, Toronto, Canada, one case.
H. HARLAND, Baltimore, "have seen cases fluctuate in both lens opacity and vision."
T. C. HOOD, Indianapolis, four cases
Total: Fourteen observers report thirty-three cases.

SUMMARY OF OBSERVATIONS.

Ten observers report twenty-three cases in which they have seen striæ of incipient cataract disappear from one or both lenses, taking with them the diffuse opacity.

Twenty-six observers report about eighty-four cases in which they have seen the diffuse opacity of the lens in incipient cataract regain transparency—no mention being made of striæ.

Fourteen observers report thirty-three cases of incipient cataract regaining partial transparency.

Thus, including my cases, fifty-one observers report about one hundred and forty-seven cases, in which the opacity of incipient cataract has regained transparency in whole or in part.

After eliminating all indefiniteness from some of the reports enough remains to show that "opaque striæ with or without adjacent lens opacity have been seen to fade into clear lens substance."

All ophthalmologists grant that the phenomenon is rare; all agree that it is most frequent at the earliest stage of development.

In most cases the transformation of lens opacity into clear substance was quite "unexpected;" like Topsy in Uncle Tom's Cabin, "it just grow'd."

The demonstracted fact of regained transparency of the lens institutes the inquiry: How was the thing done? It also suggests the obligation of making a closer study of the conditions under which cataract develops.

103 Cass Street.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

LOSS OF VITREOUS HUMOR IN THE OPERATION FOR EXTRACTION OF CATARACT:

ITS IMMEDIATE AND REMOTE EFFECT.*

J. MORRISON RAY, M.D.
LOUISVILLE, KY.

There seems to be great diversity of opinion among operators as to the exact consequences of loss of vitreous humor occurring as a complication in the operation for extraction of cataract. A general idea exists that it is an incident that they would rather not see occur, but that it has but little effect on the result of the operation. It has appeared to me that experience should give us more definite knowledge on this subject, and that we should know with exactness how much it militates against the final result.

Being a more complicated structure than the aqueous, loss of vitreous makes more demands on the reparative powers of the eye than does loss of the aqueous fluid. When once it has escaped, the replaced humor never takes on the histologic make-up of the normal structure. A new fluid secreted from the same source as the aqueous and with practically the same chemical make-up may fill out the space occupied by the lost vitreous, but the fibrillary network of the vitreous is never regenerated when lost.

Haemers found that an attempt was made to form a new structure which seemed to arise from the supporting tissues of the retina. If this be true, it is easy to see why detachments of the retina are so common as one of the later sequelæ to loss of vitreous.

There existed among the older writers a wholesome fear of loss of the vitreous humor, and as a result of this accident operations for extraction of cataract were decried.

Mackenzie stated that the operation for extraction exposes the eye to loss of a large quantity of the vitreous humor and consequently to great danger of destruction of the organ.

Since the time of Mackenzie the introduction of the antiseptic treatment of wounds, and from this the evolution of modern aseptic technic has materially changed

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

the prognosis. We find the Pagenstechers, the early champions of the operations for removal of the lens in its capsule, affirming that loss of vitreous has no concern so long as strict asepsis prevents a primary infection, and that cases in which the vitreous contains floating particles sooner or later clear, the larger the amount of vitreous lost the more rapid their disappearance.

Of material importance in considering the dangers from this complication is the stage of the operation at which the loss takes place. It may occur immediately after the completion of the corneal section, it may take place simultaneously with the escape of the lens or after the lens has been extruded. If it occurs immediately after the completion of the corneal incision it is evidence of the presence of degenerative changes in the eye resulting in the vitreous becoming fluid or the zonule being weak. If it occur during delivery of the lens or afterward, it results either from the character of the operation, the unruliness of the patient or the lack of proper technical skill on the part of the operator, the amount lost varying under these circumstances.

Beer has asserted that at least one-third of the vitreous must be lost before it will affect the result unfavorably. When it escapes before the lens is expelled the greatest danger is that the lens will drop backward into the remaining fluid and efforts at its removal cause a greater escape, and thus the possibility of failure to extract the lens; yet Arlt affirms that, the vitreous being fluid, a better prognosis can be expected than when it is of normal consistency, because in the latter condition it is more apt to remain between the lips of the wound and thus prevent proper approximation.

The character of the operation to a very large extent materially influences the occurrence of vitreous loss as a complication. If the corneal section is too small the pressure necessary for extrusion of the lens may cause escape of vitreous. If the section is too far back it removes the support of the strip of sclera supporting the suspensory ligament and thus favors rupture.

If the lens is removed in its capsule the danger is far greater than from any other method of extraction.

Pagenstecher, in his operation, lost vitreous in from 50 to 60 per cent. of the cases; Oxley lost it in 30 per cent. of cases, and Drake-Brockman in 28.67 per cent. Major H. Smith lost vitreous in 8.2 per cent. in a total of 1,651 cases, and more recently only 6.8 per cent. in 2,616 operations in one year.

In my experience, one of the most frequent causes for loss of vitreous is an improperly fitting speculum. If the upper arm of the speculum does not stand well out from the eye the slightest amount of orbicular spasm will force it against the sclera and rupture of the hyaloid with escape of the vitreous will ensue. This generally takes place while removing cortical material or making the toilet of the wound. For this reason I am in favor of removing the speculum as soon as the lens escapes and resorting to the use of the lid elevator for subsequent manipulations.

In a collection of several thousand cases, including those reported by Marshall, Herbert, Collins and others, I found the loss of vitreous in cases in which the capsule was divided, or the anterior layer removed by forceps, was 4.5 per cent. Being of the opinion, from personal observation and experience, that loss of vitreous added largely to our percentage of failures, I asked a number of operators of recognized experience as to their personal observations, requesting answers to the following questions:

1. Does loss of vitreous at the time of the extraction increase the danger of primary infection?

2. Does it increase the danger of iridocyclitis during the stage of healing?

3. Does it tend to produce secondary degenerative changes in the eye after a few months or years?

Some of the replies are as follows:

In answer to the first question:

DR. KNAPP stated that he does not think that a small loss signifies that there is danger, but as the vitreous is a good pabulum for microbes, the danger of infection must be increased by the loss.

DR. A. W. CALHOUN does not think that loss, if slight, materially increases the danger. He has rarely seen infection which could be attributed to such an accident.

DR. DAVID WEBSTER is not sure that it increases the primary danger.

DR. D. W. GREENE, Dayton, Ohio, is of the opinion that primary loss adds to the danger of infection because the vitreous is probably the best culture medium in the body.

DR. D. B. ST. JOHN ROOSA thinks that loss adds to the dangers of infection.

In answer to the second question:

DR. KNAPP thinks that it does.

DR. CALHOUN, in his experience does not think that it adds a danger in the healing stage.

DR. WEBSTER believes that it adds to the danger at this time.

DR. GREENE thinks that it does add to danger during healing, through prolapse and entanglement of the iris.

DR. D. B. ST. JOHN ROOSA thinks that it adds to danger from this cause.

In answer to the third question:

DR. KNAPP thinks that degenerative changes continue for months or even years in certain cases. Infection often flares up and becomes alternately better and worse, finally terminating in softening of the globe.

DR. CALHOUN does not think that slight loss has much effect on the future of the eye, but profuse loss is dangerous at all times.

DR. WEBSTER thinks that beyond doubt it tends to degenerative changes, especially detachment of the retina.

DR. GREENE thinks that the later dangers are from detachment of the retina and hemorrhages, especially in cases of advanced arteriosclerosis.

DR. D. B. ST. JOHN ROOSA thinks that it produces later degenerative changes. He says: "I gave up trying to remove the lens with its capsule on account of loss of vitreous, which I came to regard as a serious accident."

The amount of vitreous lost at the time of the operation is a difficult thing to estimate properly. Herbert says that both the frequency and quantity of loss of vitreous are apt to be a little underestimated, especially in operations in which the capsule is removed.

The normal amount present is estimated at from six to eight grams by weight. When the hyaloid is once impaired and the vitreous begins to escape any muscular contraction or movement of the eye increases the amount. Even after the lips of the wound have been cleaned and the eye bandaged we have no assurance but what more will escape or protrude into the wound.

In regard to the danger in primary loss, most operators join in the statement that the vitreous is a perfect culture medium for organisms. Fuchs remarks that it is a natural cultivation gelatin in which microorganisms thrive most luxuriantly, yet experience shows that the primary loss from infection so much feared by Mackenzie is not so great as would be expected, a most forcible illustration of the value of asepsis in this operatoin. Major Smith, in 2,616 operations, lost vitreous in 160 cases. Nine eyes were destroyed by primary infection, among which were included three in which vitreous escaped, showing an increased danger of primary infec-

tion in these cases. The relative danger being about one to four hundred in uncomplicated cases and one to fifty in those in which vitreous was expelled.

In a personal experience of two hundred extractions three eyes were lost by primary infection. In one case a large quantity of vitreous was lost and the conjunctiva was cicatricial from an old trachoma. In another the vitreous prolapsed into the wound and by preventing proper approximation opened up an avenue for infection.

My observation of the later results shows in every case examined in which vitreous was lost changes that seriously interfered with the maintenance of useful sight. Without exception, I find the vitreous to contain floating particles or opaque shreds attached at one end and moving about with every motion of the eye when viewed with the ophthalmoscope at the time of the discharge of the patient. It has been impossible to follow all the patients for a long time, but in those who have been under observation for years the vitreous contains masses or shreds of opaque material, and repeated examinations show that these are not absorbed. So long as such a condition exists the danger from degenerative changes exciting an infection or retinal detachment is present. A few cases recently under my observation will illustrate the changes that are more apt to occur.

CASE 1.—A man, aged 70, lost an eye following an extraction in another city. I did a preliminary iridectomy, hoping to add to the chance of recovery for the second eye. At the extraction four weeks later he behaved badly and squeezed the eye, losing about one-third of the vitreous, the eye partially collapsed. In order to get the wound to approximate properly, I injected a small quantity of normal saline. The wound healed and beyond a deep ciliary injection that persisted the eye looked well. Photophobia lasted for four weeks, at the end of which time the ophthalmoscope showed a very cloudy vitreous with a faint fundus reflex. At the end of six weeks vision was counting fingers, but the ciliary injection persisted, the iris began to become discolored and an exudate slowly formed in the large distorted pupil. At the end of three months the eye began to shrink and vision was lost.

CASE 2.—In a patient now under observation the eye recovered from the operation with as little reaction as occurs in uncomplicated cases and vision of 20/100 was obtained, yet the ophthalmoscope showed a number of long shreds floating about. Six months afterward, the retina became detached and an iridocyclitis caused softening and degeneration of the eye.

Another complication that has come under my observation was the leaving of a quantity of soft lens material in the capsule as a result of loss of vitreous. The eye healed slowly and six weeks later, in attempting to divide the secondary obstruction in the pupil, a retinal detachment was produced.

It would seem that a careful review of the subject leads to the following conclusions:

1. Loss of vitreous at the time of an extraction adds to the danger of primary infection, this danger being irrespective of the quantity of vitreous lost, but depending largely on the care used in the preparation of the field of operation.

2. The danger of iridocyclitis during the stage of healing is materially increased by loss of vitreous. The increased activity in the blood vessels and lymphatics during the repair of the traumatism necessary to the operation for cataract being overtaxed excites changes in the iris and ciliary body that end in a hyalitis, with closing of the pupillary space and anterior phthisis.

3. When vitreous is once lost the material taking its place, is probably aqueous, the framework is never reformed and the vitreous becomes fluid throughout. Floating particles increase in amount as time goes by, fibrillary bands are thrown out from the retina to take the place of the reticulum of the vitreous. These bands contract, causing minus tension and retinal detachments, followed by the characteristic square atrophied eye due to the action of the recti muscles on the softened globe.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

RUPTURE OF AN AORTIC ANEURISM IN A CHILD OF FOUR YEARS.*

ROBERT N. WILLSON, M.D.
AND
ALEXANDER MARCY, JR., M.D.
PHILADELPHIA.

The following case is reported as of interest to the clinician as well as to the pathologist, especially in its bearing on the relation between hereditary syphilis and lesions of the heart and vessels in early life:

Patient.—M. E., a male child, was born Oct. 19, 1903. He was the first child from the union of apparently healthy parents, born five years after their marriage.

Family History.—Both father and mother are living, and both are 34 years of age. The father had the usual diseases of childhood, and hesitatingly denied having had a sore on the genitals, but admitted two distinct attacks of gonorrhea prior to marriage. At the age of 21 he began to experience convulsive seizures resembling epilepsy in all respects. He was treated for epilepsy by several neurologists in this city, but always with an increase in the number and severity of the attacks rather than relief. Mercury and the iodids had never been employed to his knowledge. These attacks still continue, though at seemingly increasing intervals. Apart from them his general health is good. The opportunity was not afforded to examine the father thoroughly, but it is of interest to note that his nose is distinctly suggestive of the saddle type. He shows no other outward marks of specific involvement, and even this is not perfectly developed. The mother is apparently well and strong. She presents no external evidences of lues, nor does she remember any symptoms that would lead her physician to suspect that she has ever been infected. The paternal grandparents of the child are alive and well at the ages of 67 and 70, respectively. The maternal grandfather is also healthy at 70. The maternal grandmother died at 35 of "lung trouble," probably tuberculosis.

Personal History.— At birth the child was cyanosed and breathless, artificial respiration being required to establish normal breathing. Weight 12 pounds, body well formed, and physical development apparently perfect. At six weeks of age he had a severe attack of bronchitis. A few weeks later he suffered from whooping cough. While examining his chest during the bronchitis his physician (Dr. Marcy) noted a loud systolic murmur, heard best over the aortic cartilage to the right of the sternum, over the second and third interspaces. The murmur was so loud, however, that it could be heard over the entire chest, both anteriorly and posteriorly. As he had never before had an acute illness this murmur was assumed to be and probably was indicative of a congenital lesion. Compensation was good, and the circulatory supply to the surface and to the extremities subsequent to birth seemed always satisfactory. In June, 1905, he experienced what his mother described as a "fainting spell," but did not lose consciousness. Nothing further of interest occurred until his last illness, beginning Nov. 17, 1906. This was ushered in by vomiting, with an active rigor, and fever, which repeated themselves time and again. A malarial infection was of course considered, and quinin given in liberal dosage. No improvement resulted. The fever came and went with painful regularity, excepting as to the time of day. The rigor did not always accompany the

* Read before the College of Physicians of Philadelphia, April 10, 1907.

rise of temperature, nor did the latter persist throughout the same number of hours, nor reach the same height. Now it would appear in the morning, again in the afternoon, then toward evening, or during the night. As a rule it averaged 102 F., but on several occasions it went as high as 106 F. The interval was afebrile, and when free from fever the child was very bright and natural and wished to play. With the temperature above normal, however, he was at once dull and listless, resenting interference on the part of nurse or doctor. At times he complained of distress, generally in the epigastrium, but occasionally in the upper portion of his chest beneath the sternum. Sometimes pain was referred to the neck, and he would say that it hurt him to turn his head. Sometimes it would shoot to his feet, particularly to the great toe, sometimes of one foot, again of the other. There was a gradual loss of flesh and strength, with a noticeably increasing anemia. The urine at first showed no pathologic[illegible]ge. Later on hyalogranular casts were found, also a few [illegible]rpuscles, and one purely blood cast. Albumin was never [illegible]d. Frequent examinations found the lungs always norm[illegible] also the abdominal organs. On Dec. 13, 1906, we saw him in consultation, and obtained the following additional history. The boy had been happy and bright until about one month previous, when, as stated, he had begun to experience irregular and almost daily rigors and febrile attacks. During the preceding two days there had been present a slight cough. No expectoration was noted.

Physical Examination.—The physical examination found a well-developed child, evidently under the influence of a grave toxemia. The skin was sallow, almost of a lemon yellow tint; the mucous membranes were blanched. The pharynx, mouth and teeth showed nothing of particular bearing on the case. The anterior and posterior cervical glands, the submaxillary chain, as well as the axillary, epitrochlear, and inguinal series, were all enlarged, fibroid, and painless. There was no eruption on the skin of the face or body. The chest was large and well developed. Over the episternal notch an expansile pulsation was evident. Over this and extending in all directions was a marked systolic, vibratory thrill, perceptible over the entire upper chest anteriorly and posteriorly. Beneath the membrane, and to right and left of the same for a distance of about two and one-half inches, the percussion note was absolutely flat. A loud systolic and diastolic, to-and-fro—almost continuous—bruit was heard, with greatest intensity over the second interspace to the right of the sternum, transmitted over the entire precordia, and especially to the right scapular region. Both the second aortic and pulmonic sounds seemed to be diminished. The pulse rhythm at both apex and wrist was regular. Examination of the lungs discovered no other abnormality than a rapid respiratory rate, and a slight impairment of the play of the right upper lobe. The abdomen appeared absolutely normal, including the liver and spleen, and other organs subject to examination. There was no edema of the extremities and face. The pupils were equal and normal, reacting promptly to light and distance. There was no rigidity of the nuchae. The radial pulses were similar in time and force. The arterial tension was high, and independent of this, the arterial wall appeared slightly thickened as with sclerosis. There was no tracheal tug.

Blood Examination.—The blood examination showed the following: Hemoglobin 49 per cent (Dare), red corpuscles 2,000,000, leucocytes 28,000. Considerable poikilocytosis. Malarial plasmodia not found in fresh, nor in stained specimen. No pigmentation of leucocytes. The differential count of leucocytes gave of the polymorphonuclear type 72 per cent., lymphocytes 14 per cent., large mononuclear 14 per cent.

One week later, on Dec. 24, 1906, the face became puffy, the tissues boggy, though there was no apparent pitting on pressure. The temperature was 104 F., the child now being constantly febrile. Rigors were only occasional, but very severe and distressing. The pallor had deepened to a dusky hue, the child very listless. There appeared to be a small quantity of fluid in the abdomen, and also in the right pleural cavity. It was noted also that while the left carotid was still pulsating the left radial pulse had almost disappeared, all other physical signs remaining as before. The radial arteries were both distinctly palpable, and seemingly thicker than normal.

The blood showed a hemoglobin percentage of 36 per cent.; the numerical relation of leucocytes to the red corpuscles was 1 to 50 in the fresh specimen. No malarial plasmodia were found. Many nucleated red corpuscles were evident. The father's history of epilepsy, beginning at the twenty-first year, his saddle-nose, the history of a urethral discharge following exposure to infection, a rather dubious denial of a primary sore—together with the result of our study and examination of the child—seemed to warrant the opinion formed provisionally at our first meeting that the case was one of congenital syphilis. The thoracic condition did not seem by any means clear. Aneurism was considered, and in an adult would have been determined as certainly present, but was looked on as unlikely owing to the extreme youth of the child. It appeared more probable that a mass of enlarged bronchial glands, either syphilitic or tuberculous (probably the former) was present in conjunction with a congenital syphilitic endocarditis, presumably centered on the pulmonic or aortic valve. Two days later, December 26, after seeming brighter and better than for several days, the patient suddenly screamed and, throwing up his hands, expired.

Autopsy.—The autopsy was performed by Dr. Willson at Riverton Dec. 28, 1906, and gave the following interesting data: Body edematous, pitting along tibial surfaces. Glands everywhere enlarged. Thorax: Pericardial sac distended, and of a bluish appearance from contained blood. Heart small, pale and contracted in systole. Aneurism of ascending and transverse arch (see illustration), ruptured into pericardial cavity through an ulcerated opening about 1 cm. wide. Considerable pericarditis evident along upper and outer area of visceral and parietal pericardial layers. Aortic valve showed high grade stenosis, its opening almost occluded. The aorta outside the valve showed extensive layers and patches of atheroma, the aortic wall very thick. The pulmonic valve was normal. Cardiac muscle very pale. Lungs: Pale, anemic. About an ounce of fluid in the right pleural cavity. No adhesions. No consolidation. Abdomen: Small quantity of fluid present. All tissues blanched. Liver large, hard and suggestive of fibroid change. Spleen large and congested only. Stomach shows small submucous hemorrhages, otherwise normal. Intestines pale, no ulceration. Mesenteric glands along the ileum and cecum enlarged and very dark. The kidneys showed deep congestion, and considerable yellow, fatty deposit, especially along the cortical margin. The pancreas appeared normal.

The main interest in this case centers, of course, in the etiology and in the question whether the aneurism may or may not have been a congenital condition, synchronous in formation with the congenital valvular lesions. Indeed, it seems by no means impossible that the loud systolic bruit and the rasping thrill evident over the whole chest wall shortly after birth were due to the aneurism rather than to the extremely high grade aortic stenosis which so almost completely obstructed the outflow from the ventricle as to raise a doubt whether such a murmur could have been due to the stenosis. It would appear probable to us that the incipient aneurism was of intrauterine origin; that the ulcerative process which reached an advanced state in the aortic wall progressed after birth until it finally eroded its way through the adventitia into the pericardial cavity, and that some trifling additional strain on a barrier already of gossamer thickness was sufficient to cause the rupture and the fatal outcome.

There seems, moreover, to exist no room for doubt that the aneurism was of syphilitic origin. If there were no other proof the high degree of sclerosis of the aorta, the typical patches of atheroma evident on the interior of the vessel, the thickening of the radials in a child of four, the general glandular enlargement, all this in the absence of mercurial or any other medication that could

have contributed to the sclerotic tendency, together with the important evidence of a congenital heart lesion; all of these by themselves inconclusive signs, we believe to be sufficient to warrant the diagnosis of latent hereditary syphilis, with consequent degeneration of the arterial walls and aneurism. The father's spurious epilepsy and his suggestive venereal history render the conclusion practically certain.

It would appear that the case under discussion is the only instance noted in the literature of death by rupture of an aneurism of the thoracic aorta at such an early age. We find a number of instances of aneurism of the thoracic aorta, of the cerebral arteries, also of the abdominal aorta, usually discovered at the autopsy. One of the youngest subjects that has come to our notice suffering from aneurismal involvement is a child (mentioned in the Reports of the City Inspector of New York for the period 1856 to 1864) between 2 and 5 years (not of the arch), one between 5 and 10 years of the arch, two between 10 and 15 (neither of the aorta), and an increasing number as the age rises.

Le Boutillier[1] has also recently collected a series of

Ruptured aneurism of aortic arch in child of four years.

cases of aneurism in early life, and himself reports one of the thoracic aorta in a child of 9 years, still living. In his bibliography there are noted seven cases of thoracic aneurism in children under 10 years of age, all dying of some independent pathologic condition, or still alive at the time of the report. The youngest of these cases was 2 years of age, the death being due to hemorrhagic smallpox, not to the aneurism.

In most instances these aneurisms are the result of hereditary syphilitic change in the vessel walls, perhaps rarely to tuberculous or rheumatic arteritis, far less frequently (probably never in the case of the aortic arch) to thrombosis and other causes. In Le Boutillier's case, as in that under discussion, there would appear to be a possibility that the paroxysmal effort in whooping cough was a contributing causal influence.

While the case reported in this paper is undoubtedly an instance of a most rare condition, it is none the less of practical interest in its bearing on the diagnosis of intrathoracic conditions in very young children.

1. Amer. Jour. Med. Sci., May, 1906.

NEUROFIBROMA OF THE ORBIT: KRÖNLEIN OPERATION.*

WALTER R. PARKER, B.S., M.D.
Professor of Ophthalmology in the University of Michigan.
ANN ARBOR, MICH.

Cases of neurofibromata (pseudo-neuromata, solitary neuromata) of the orbit are extremely rare, there being but two cases on record. Of these, one reported by Tersch[1] involved the lachrymal branch, and one reported by Marchetti[2] the infraorbital branch of the fifth nerve.

The ophthalmic division of the fifth nerve has been involved in multiple neuromata, and Bietti[3] has described amputation neuromata of the ciliary nerves after optic-ciliary-neurotomy. Houel[4] has described small tumors of the third, fourth, nasal and frontal branches of the fifth nerve, found postmortem, which had never caused clinical symptoms.

The extreme rarity of neurofibromata is shown by the following statement of Tersch: "A solitary neuroma is altogether a rare tumor and its location in the orbit

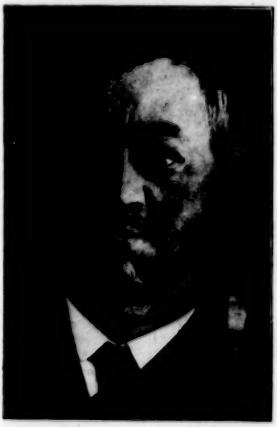

Fig. 1.—Photograph of patient before operation.

appears at least a curiosity;" and of Marchetti, who, after eliminating the plexiform neuromata as described by Billroth and others, says: "The exposition of the case shows its importance; a tumor rare as a pathologic type and unique in consideration of the place of its development. In fact, in the literature which I have been able to consult I have found no example of tumors developing through the infraorbital nerve."

A short review of the two published cases will be given in this paper, and a report added of a tumor of similar nature removed by me. The whole will be treated from a clinical standpoint, referring those who are interested in the detailed pathologic findings to the reports of Tersch and Marchetti.

MARCHETTI'S CASE.—*History.*—Male, aged 30. At the age of 5 the mother first noticed on margin of lower lid a nodule

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

1. Arch. f. Ophth., 1902.
2. Ann. di Ottalmologia, 1904, xxxiii.
3. Arch. f. Ophth., 1900.
4. Lagrange: Etudes sur les tumeurs de l'oeil.

of reddish color with smooth surface. At the end of one year it had acquired the size of a cherry, producing lagophthalmus. At the age of 14, nine years later, the tumor had reached the size of a medium-sized pear, the larger part hanging down on the cheek. There was no pain, but considerable tenderness on pressure. Other than the drawing down of the lid, the eye was apparently normal. There was a history of frequent hemorrhage following a slight abrasion. The tumor gradually increased in size and extended upward and backward into the orbit with final loss of function of the eye. The skin covering the tumefaction, at first but slightly changed, now assumed the aspect of elephantiasis and secreted a considerable quantity of limpid fluid. The tumor became extremely sensitive with frequent shooting pains extending over brow and head. Intellectually, the patient was subnormal, of fairly robust appearance and otherwise healthy. Family history negative. The tumor finally assumed the size of the head of a newborn child, extending downward beyond the chin with the stem rather large, extending into the orbit. The arch and inner wall of the orbit were normal; the outer wall, however, was pressed outward one and one-half centimeters. The lower wall could not be examined. The eye, greatly changed in appearance, was crowded upward and forward. The orbit was filled with a mass which was continuous with and formed part of the tumor. It was hard, apparently of a fibrous nature and covered with thickened skin which was movable on the growth. The orbital portion was slightly movable.

Operation.—In May, 1900, under chloroform anesthesia, the tumor, together with the eye, was extirpated without difficulty,

Fig. 2.—Tumor, 1½ times natural size.

there being no attachment to the orbital wall. Recovery was uncomplicated. The lower orbital wall was found converted into a groove in which the neck of the tumor rested.

Macroscopic Examination.—The tumor was found to consist of two portions well differentiated one from the other. The orbital portion about the size of a fist, egg-shaped, with well defined capsule. On the anterior surface was the eye, greatly modified. The lower part of the posterior surface was surrounded by branches of the infraorbital nerve, which were normal in appearance and size and so intimately connected with the tumor that they could not be removed from it without tearing. Attached to the lower and outer part of the orbital tumor was the mass which protruded on the cheek.

Microscopic Examination.—Only the orbital portion, it was found, could be considered as the tumor proper, the lower part being exclusively represented by the characteristics of elephantiasis of the skin.

After a detailed description of the tumor, together with the microscopic findings, the author made the diagnosis of false neuroma.

Tersch's Case.[1]—*History.*—Female, aged 43. Three years previously the patient noticed that the unaffected eye was deeper in and higher up than its fellow. A diagnosis of retrobulbar tumor was made and operation advised, but this the patient refused. The condition remained the same for two and one-half years, when the tumor began to grow rapidly. The patient then consented to an operation.

Examination.—Behind the upper lid of the right eye could be felt a resistant tumor, which rested on the bulb like a cap, extending from the trochlea to the lachrymal gland without being attached to either. The finger could be easily forced between the tumor and the eyeball. The tumor pushed the eyeball down and out, so that the upper limbus of the cornea was on a level with the lower pupillary border of the other eye. The exophthalmus was 12 mm. The movement of the eyeball except upward was free. Left eye normal. Fundi normal. Examination revealed no other tumor or swollen lymph glands. Patient was not examined for disturbances of sensibility in the fifth nerve areas, but had no pain or parasthesias.

Operation.—The operator, Professor Fuchs, made an incision parallel to the eyebrow, and, entering the orbit, removed a rather large tumor, apparently a lipoma, which semed to be sharply circumscribed. Removal was not difficult, the growth being connected with the surrounding tissue merely by a few thin strands. No other tumor could be palpated. The wound healed readily. There resulted a slight ptosis. Exophthalmos disappeared and the eyeball receded. After six months the patient appeared normal, the two eyes similar in appearance, and no further tumor formation noted.

Examination of Tumor.—The tumor appeared egg-shaped, 3.5x2.75x2.5 cm. in size, of soft consistency, yellow color, lobulated upper surface. A distinct capsule could not be seen

Fig. 3.—Photograph of patient six months after operation.

macroscopically. On account of its consistency, the tumor was diagnosticated a lipoma. At one pole of the tumor a nerve was found entering the growth.

According to the pathologic and histologic findings, there was no doubt that the growth was a so-called pseudo-neuroma (neurofibroma), which is called in the literature a solitary neuroma. It was difficult to decide from which nerve the new growth sprang; but the author, by exclusion, concluded that it was a neuroma probably of the lachrymal branch of the fifth nerve. So much for the two cases on record.

The Author's Case.—*Patient.*—Male, aged 28, referred to the ophthalmologic clinic from the oto-laryngologic clinic of the University of Michigan, in November, 1906.

History.—The patient gave a history of exophthalmus of the left eye, gradually increasing during the preceding twelve years. He had been subject to attacks of acute mania during the past six years. There was present no pain nor discomfort in the eyes except from double vision, which was especially noticeable if looking upward. No fundus changes. Vision about 20/30. The patient being illiterate and mentally substandard, accurate results could not be obtained.

Examination.—The skin of the upper lid as well as that surrounding the orbit was normal. Deep in the orbit could be felt a resistant tumor which seemed to surround the bulbus, but was found not to be attached to it. It was difficult to determine before the patient was anesthetized whether the tumor was movable or not. No well-defined demarcation between the tumor and the superior orbital wall could be felt. The exophthalmos was marked, outward about 12 mm. and downward so that the upper margin of the cornea was on a level with the lower pupillary margin. The movements of the globe, with the exception of upward, were normal. Right eye normal. Fundi normal. Patient was of medium stature and except for his mental condition, apparently healthy. The lymphatic glands were not enlarged, and with the exception of a small nodule on the brow, there were no other tumors of the skin or other parts of the body. Examination of the sensibility disturbance of the trigeminus branch was unsatisfactory. A nodule, about the size of a cherry, was situated on the brow just above the supraorbital notch. With the idea that there might

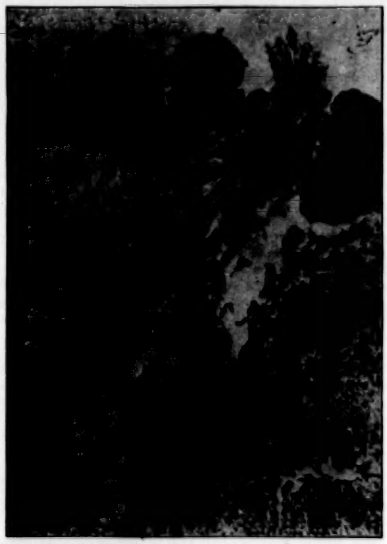

Fig. 4.—Photomicrograph of tumor showing entrance of nerve (x24).

be some relation between this nodule and the orbital tumor, it was determined to remove the nodule and submit it to examination. When removed, it had every appearance of a lipoma. A preliminary report from the pathologic department was fibroma, possible neurofibroma. Deep palpation while the patient was under ether revealed the fact that the orbital tumor was movable.

Diagnosis.—The following diagnostic points concerning the orbital tumor were obtained: 1. A non-malignant growth as revealed by the history and pathologic report. 2. The displacement of the globe outward and downward indicated that the tumor was situated outside and above the muscle cone. 3. It was movable.

Operation.—It was decided to attempt the removal of the orbital tumor after the method of Krönlein. A curved incision was made beginning over the temple, extending along the outer margin of the orbit, dividing the periosteum, and backward along the upper edge of the zygomatic arch. The periosteum lining the inner side of the outer wall of the orbit was resected, together with the orbital contents. The lateral wall of the orbit was cut through with a chisel in two places, above, in the suture between the great wing of the sphenoid and the malar bone, and below in a horizontal plane passing outward in a line directly above the insertion of the zygomatic arch. This piece of bone with its muscle and cutaneous attachments was forced backward, giving free access to the orbit. The periosteum was divided in a horizontal direction and the tumor then extirpated without difficulty. After removal, the periosteum was sutured with catgut, the bone and soft parts replaced, and the skin sutured with silk. Union was perfect and recovery uninterrupted. The excursion of the eye became normal and the vision remained the same as before the operation.

Macroscopic Examination.—The tumor was somewhat kidney-shaped and measured 35x25x9 mm. The surface was nodular and had the appearance of a lipoma. Protruding from the tumor were three nerves, which a careful examination seemed to prove to be the frontal externally, the supratrochlear below, and the supra-orbital nasally. When held before the light, the larger nerve was seen to divide into two branches, and the course of each could be traced through the mass. The tumor apparently had its origin in the sheath of the frontal branch of the ophthalmic at the junction of the supratrochlear and supra-orbital nerves.

Following is the report from the pathologic laboratory, for which I am indebted to Professor A. S. Warthin:

Microscopic Examination.—Tumor consists of fibrous connective tissue loosely arranged in moderately coarse fibrils with large areas of a more finely fibrillar connective tissue, resembling edematous connective tissue. The spaces between the fine fibrillæ are large and contain a finely granular precipitate. The appearance is that of an edematous fibroma. Running through the center of the mass of connective tissue are nerve fibrils, in part connected as in a nerve trunk, but for the greater part separated by connective tissue. These nerve fibrils show no increase in size, and appear normal. The connective tissue hyperplasia is limited chiefly to the connective tissue of the pari- and epi-neurim, that of the endo-neurim being affected to a less degree. The growth is poorly supplied with vessels, the veins showing a chronic congestion.

Diagnosis.—Edematous neurofibroma. (Fibromatosis of nerve trunk).

Considering the three cases as a class, there are some peculiar similarities. Two of the cases were substandard mentally, suggesting the possibility of similar intracranial nodules. In two the tumors were diagnosticated macroscopically lipomata. In all three the pathologic findings were the same, although in one there was elephantiasis of the lid.

As regards the method of operating, I believe that if the exact condition present had been known the tumor could have been removed from above, as was done in the Tersch case. No procedure, however, could have been more satisfactory than the Krönlein operation, and it offers better opportunity to meet any complications that may be present.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

SUPRARENAL HEMORRHAGE; AN UNUSUAL CAUSE OF SUDDEN DEATH.*

J. F. MUNSON, M.D.
SONYEA, N. Y.

I am indebted to Dr. B. F. Andrews, interne at the Colony, for the history and clinical notes in the following case:

Patient.—G. D., male, aged 25, a native of New York and by occupation a farmer, was admitted to the Craig Colony in 1901, at the age of 19 years.

Family History.—Mother was hysterical both before and

*From the Laboratory of the Craig Colony for Epileptics.

after marriage; possibly tuberculous. Father had "fainting spells" between his sixteenth and thirty-fifth years; was subject to rheumatism. Both parents are said to have been subject to headaches.

Personal History.—Was a strong healthy baby. "Worm fits" at age of 3 years. Epilepsy said to have begun at the age of 15; history blank states cause to have been worms, but none were seen. Grand mal attacks, both diurnal and nocturnal. It is stated that the right arm is "most frequently involved." When admitted, the patient was feeble-minded. No abnormalities were noted at the physical examination except stigmata of degeneration. The patient began to fail progressively, till in 1906, he was described as a "filthy, idle idiot. In good physical condition."

Jan. 24, 1907. Patient had been in his usual condition. On this day patient's lip was noted to be much contused, the result of a fall during a seizure. On account of his exhausted and weak appearance he was put to bed, where later it was noted that he had a profuse diarrhea. This had been noted by the night-nurse for two nights previously but had not been reported. Milk diet ordered.

Right kidney and suprarenal.

Jan. 27, 1907. Patient was less prostrated, was somewhat interested in his surroundings, and took his nourishment well. Diarrhea continued unchecked. Physical signs of thorax and abdomen were negative; the abdominal wall was relaxed and there was no tympanites. The stools were light and watery, small in amount but frequent.

Jan. 28, 1907. Enteritis unchecked by treatment. Patient appeared well able to go to bathroom, fifty feet away, where he frequently had to be given a cleansing bath.

Jan. 30, 1907. Diarrhea was as copious as formerly. Physical examination negative. Slight mental disturbance. Appeared weaker than formerly.

Jan. 31, 1907. Patient showed no change when seen this morning. Diarrhea was unabated. Shortly before two o'oclock, patient walked to bathroom with assistance of one attendant and received a tepid bath, after which he was again placed in bed, in apparently the same condition as had obtained for the previous two days. Within a few moments his condition changed for the worse, the pulse weakened and the respirations grew very shallow. He was given atropin and strychnin, but sank into a comatose state, followed by collapse and death at 2:15 p. m.

Autopsy.—This was granted and was held Feb. 2, 9:30 a. m. The following is an abstract from the protocol:

Autopsy No. 98. G. D. Dura adherent to skull posteriorly. Small osteoma of dura over upper extremity of (right) superior frontal convolution. Meninges were moderately congested. Brain negative; weighed 1,285 grams. Left suprarenal noted as a mass of torn clot while removing the left kidney; the organ was enlarged, its thickness being much increased, and it appeared as a solid mass of clot. A cortical layer could be distinguished. The hemorrhage involved principally the medullary portion. The torn condition made measurements impossible. The secreting substance of the left kidney appeared normal, except that in it were cysts filled with creamy yellow pus; the cysts had no well-marked walls; it appeared as if some cysts had been repaired by calcification. Weight of left kidney and suprarenal was 210 grams. On beginning the removal of the right kidney, a large mass was noted at the superior pole. This proved to be the right suprarenal. This was about two inches long by one and three-quarters wide and an inch thick. The cut surface had the appearance of a clot. At the border of the organ, a lighter band (cortex) could be seen, so that the hemorrhage occupied the medullary portion. Right kidney and suprarenal weighed 217 grams. The hemorrhage did not extend outside the two organs. The right kidney was negative. On the ileum, low down, there were a few hemorrhagic points. The wall of the large bowel was much thickened and about half the surface appeared to be ulcerated, the other half was elevated and rough, somewhat like the surface of a cauliflower or blackberry.

Histologic Examination.—The secreting structure of the kidneys was slightly atrophic, the capillaries were greatly congested and there was some small cell infiltration. The epithelium of the tubules showed moderate cloudy swelling. The small abscesses in the left kidney were seen to have no wall other than necrotic renal tissue, much infiltrated with cells. The left suprarenal showed the blood spaces betwen the cell cords of the cortex dilated and filled with red blood cells. The nuclei of the gland cells showed faintly in places. The boundary between the cortical and medullary portions could not be clearly made out, but the deeper portions were more obscured by red blood cells. The capsule contained some red cells and the pericapsular tissue, and its vessels, were much congested. The right suprarenal presented similar appearances. The nuclei of the cortical portion took the nuclear stain better but red blood cells were much more numerous and obscured the cell cords more than in the left; in the medullary portion blood cells only could be seen; there was no sign of organization of the clot.

One is, I think, entirely justified in ascribing G. D.'s death to suprarenal hemorrhages. The time of occurrence of the hemorrhages is a point of interest and one which, unfortunately, can not be decided; the appearance of the organs when removed was that of recent hemorrhage, but farther than that I can not state. The appearances of the gland cells might be due either to the stasis or to postmortem change, as the autopsy was not held till over forty hours after death. The mental deficiency of the patient made it impossible to ascertain the subjective condition. It would seem probable, from the microscopic appearances, that the enteritis was independent of and preceded the suprarenal condition.

Suprarenal hemorrhage is by no means a new condition. In a hasty search of the literature it was found that over fifty cases of hemorrhage in adults have been reported.

Suprarenal hemorrhage is common in still-born and very young infants, occurring in about 45 per cent. of autopsies, according to Arnaud.[1] In young children the hemorrhage is often accompanied by a purpuric eruption, with fever and sometimes convulsions, suggesting an acute exanthem. In adults the condition is much more uncommon, Arnaud's figures for adults being 1

1. Arch. Gen. de Med., 1900, n. s. iv, 5.

per cent. This, however, seems very high, but the examination of suprarenals is often neglected. Males are more commonly affected than females and the right side than the left, or, in the case of the not uncommon bilateral lesions, the right side is more extensively involved.

Nothing positive is known as to the etiology of the condition. Various hypotheses have been advanced, namely, trauma, changes weakening the vascular wall, stasis and thrombosis of the suprarenal vessels. The symptoms in young children simulating an exanthem and positive cultures from some cases have led to the assumption of a fulminating infection as the cause; the evidence for this view is not, however, sufficient.

Clinically, Arnaud recognizes three types: 1. Cases with signs of peritonitis or internal hemorrhage; pain, distension, collapse, hypothermia. 2. Cases of suprarenal insufficiency, without bronzing of the skin; anemia, muscular weakness, prostration, loss of weight and diarrhea. 3. Cases in which the symptoms are nervous, apoplexy often being simulated. These groups apply mainly to the adult cases. If the infantile cases are to be included we must add the classes suggested by Dudgeon:[2] Hemorrhage in the new born; cases suggesting an exanthem, and cases with purpura, etc., not suggestive of exanthemata. He also suggests as a group cases in which the lesion is only discovered at autopsy.

The diagnosis of suprarenal hemorrhage can be positively made only when the glands are sufficiently enlarged to be recognized by palpation. The blood pressure should show a striking fall in these cases, but Janeway's remarks[3] on the blood pressure in Addison's disease cast some doubt on this; however, the sudden disablement of the glands in hemorrhage as contrasted with the progressive destruction taking place in Addison's disease, may make a great difference.

Since the publication of Arnaud's paper[1] in 1900, except possibly the article by Gackawski,[4] to which I have not had access, I have found only one report of suprarenal hemorrhage in adults. This is reported by Laignel-Lavastine:[5]

A moulder aged 46, fell unconscious in the street. When seen, he was comatose, cyanosed and his head was inclined to the left. Respiration was thoracic, rapid and superficial. Abdomen was slightly distended and appeared fixed. At the autopsy, the important findings were small papules of atheroma on the aorta and bilateral suprarenal hemorrhage. The right organ measured 60x50x30 mm.; the left 65x30x15 mm. The capsules were thick and the cortex was recognizable.

This case, with that here reported, illustrate two of the types of Arnaud. Laignel-Lavastine's case belongs to the nervous and mine to the asthetic form of the disease.[6]

In conclusion, the case here presented is one of sudden collapse and death during a severe but supposedly not dangerous enteritis. The patient had for some years been subject to epilepsy. Both suprarenals were completely hemorrhagic and the other organs showed marked congestion. One is led to believe that death was due to circulatory failure caused by the sudden removal of the tonus producing secretion of the suprarenal glands.

2. Amer. Jour. Med. Sci., 1904, n. s. cxxvii, 134.
3. Clinical Study of Blood Pressure, 1904, 237.
4. Nebennierenblutung, Munchen, 1905; C. Wolf & Sohn.
5. Bull. et Mem. Soc. Anat. de Par., 1903, lxxviii, 153 and 1901, 683.
6. The following additional references are given for the benefit of those wishing to look still further into the literature on the subject: Gargano: Rivista Crit. di Clin. Med., Firenz., 1900, i, 553. Hamill: Arch. Pediatrics, 1901, xviii, 81. Wolley: Jour. Med. Research, 1902, ii, 231, and Montreal Med. Jour., 1902, xxxi, 435. Dörner: Vertljschr. f. gerich. Med., 1903, xxvi, 134. Langmead: Lancet, 1904, i, 1496. Pick: Med. News, 1905, lxxxvi, 886. Obern-dorfer: Wiener Klin.-therap. Wochschr., 1905, 623.

THE INDICATIONS FOR RESECTION OF THE MIDDLE TURBINAL.*

W. E. CASSELBERRY, M.D.

Professor of Laryngology and Rhinology in Northwestern University Medical School; Laryngologist to St. Luke's and Wesley Hospitals.

CHICAGO.

Since 1891, when, in a paper before the American Laryngological Association, I advocated resection of the middle turbinated body as essential to the radical treatment of ethmoiditis and nasal polypus, a review of the records shows that I have done this operation on about 120 patients, invariably with more or less benefit and never with any serious detriment resulting. Also, it is shown that many times a resection, though perhaps recommended, was omitted, when, in accordance with my present understanding, it would have remedied the conditions most promptly and effectively.

INDICATIONS FOR THIS OPERATION.

Analyzing these resections, the purposes of the operation have been:

1. To promote drainage and counter-drainage in nasal accessory sinus suppuration and for access in diagnosis and treatment.

2. To promote drainage and cleansing in certain types of atrophic rhinitis (atrophic ethmo-rhinitis).

3. To relieve edematous turgescence and to provide access for the radical treatment of non-suppurative ethmoiditis and nasal polypus.

4. To suspend pressure leading to headache, neuralgia, eye symptoms and broadening of the nasal bridge, etc.

5. To improve nasal respiration and ventilation.

6. To relieve hyperesthesia and to diminish certain reflexes, e. g., sneezing, asthmatic stimuli, etc.

Of these indications I will elaborate principally the first and second, respecting which we have been able in recent years to form new convictions based on the more extended surgical exploration of the ethmoidal labyrinth which has been rendered possible by the combined effects of cocain, adrenalin and asepsis. At the period above mentioned, when I first advocated its resection with similar objects in view, any mention of the middle turbinal would be met by the reminder that this body was a process of the ethmoid bone; hence, for surgical interference, in dangerous proximity to a vital organ. We now know this to be one reason why this structure requires surgical interference. The logic of the situation was tersely told in a recent office conversation. Said the patient, "Is it not dangerous to do?" "Well, possibly, yes, but far less dangerous than not to do it." "Won't the operation 'scatter' the disease to the brain?" "No; it will clear an outlet away from the brain." "Why, how so?" Whereon, being shown anatomically the situation of the ethmoid cells and fissure and the closing-in effect which the middle turbinal necessarily exerts on the secretions, the patient said, "I see; you simply take away the dam."

The First Indication.—To promote drainage and counter-drainage in nasal accessory sinus suppuration and for access in diagnosis and treatment.

In strictly acute frontal sinuitis, if wisely palliated, the patient usually recovers without operation. Those cases in which I have found it necessary to promote drainage of an apparently acute abscess by removal of a portion of the middle turbinal have really been examples

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

of an acute exacerbation of a partly dormant chronic sinuitis. In two cases the resection of an impacted hypertrophied anterior end, by suspending compression near the outlet, afforded adequate relief without any additional interference. In a third case, however, this procedure afforded no relief alone, but served as a helpful preliminary to the subsequent external operation. Regarding chronic suppuration of the frontal sinus, I have recently discussed[1] the scope as well as the limitations of the so-called conservative treatment by means of middle turbinectomy, enlargement of the naso-frontal duct and curettage of the adjoining ethmoidal cells, the purpose of which is drainage. In cases of mild uncomplicated single sinus suppuration this is followed by betterment and occasionally by recovery. Moreover, even when a radical operation is the logical remedy, inasmuch as a preliminary turbinectomy is helpful, it may be or perhaps even should be first invoked, provided the symptoms be not urgent and provided, also, that the patient's available time be not thus exhausted. Sixteen of my total series of middle turbinectomies were made in selected cases to meet this indication; of these, seven patients are now well, five are improved and four are but little benefited.

It is well known that in acute empyema of the antrum of Highmore spontaneous recovery usually takes place, but it is not generally recognized that the same fortunate outcome may occur in that class of cases which grades from the prolonged subacute condition to the partly quiescent chronic state. This recuperative effort of Nature surely may be enhanced within limits by the removal of the "dam." It so happened that in four cases of my series, cases of long duration but of varying activity, I had done middle turbinectomy, intending it to be merely a preliminary to the radical antrum operation; but the patients, content for the time, drifted away and when next seen, months or years afterward, were found to have recovered completely from the antrum suppuration. Again, it happened in two cases that having first operated radically through the canine fossa, making also a counter-opening from the antrum to the inferior nasal meatus, afterward a little pus continued to collect around a polypoid middle turbinal. After this structure was resected and the underlying distended bulla curetted away, the pus formation entirely ceased, and that within a period sufficiently brief to establish the fact that the ethmoidal cells and not the frontal sinus had been implicated, perhaps having been the fountain head of the infection. On the other hand, in a third case of the sort, after a radical antrum operation, done, by reason of the patient's advanced age, simply under cocain anesthesia, on looking across the antrum, one could see the pus trickling into that sinus from an inlet high up on its nasal wall through which a probe, projected across the antrum, would pass and enter a distended ethmoidal cell. Subsequently, middle turbinectomy and curettage of the cells was done, but the suppuration, though lessened, continued still, thus showing that not the ethmoidal but the frontal sinus was its source. This patient, however, is so far improved by the freedom of the drainage established that, at the age of 84 years, it is doubtful if more should be attempted.

These particular cases are cited, furthermore, to support my suggestion and practice when performing the radical antrum operation, opening widely from the canine fossa, that, instead of making the customary counter-opening through to the inferior nasal meatus, it is easier and better to break freely through the nasal wall from the antrum at the level of the middle meatus and incidentally to curette away part of the ethmoidal cells, making at the same time, if not before, or else afterward, a middle turbinectomy.

Even when the main surgical treatment is attempted from the nasal side by way of the inferior meatus as a substitute for the wider opening of the canine fossa, it is well to supplement it by resection of the middle turbinal. I have adopted this line of treatment in one only selected case. The patient had been under my observation for two years before consenting to any operation, notwithstanding that she was repeatedly shown Schmidt's syringe full of pus aspirated first from one antrum and then from the other. A few small polypi indicated conjoined ethmoidal disease, while the exact state of the frontal sinuses was uncertain. Bilateral inferior turbinectomy with wide penetration of the lower naso-antral wall supplemented by curettage, and bilateral middle turbinectomy with ethmoidal curettage required four major séances at varying intervals, which, together with several minor séances, extended the treatment over several months. The patient, however, was at no time wholly disabled from duty and the result is brilliantly satisfactory. At the same time I do not wish to be understood as advocating the general adoption of an exclusively nasal route to the antrum, but when it is adopted I believe it should be reinforced by resection of the middle turbinal.

The Second Indication.—To promote drainage and cleansing in certain types of atrophic rhinitis (ethmorhinitis atrophicans).

It should be noted that only certain types of atrophic

Fig. 1.—Nasal outline. Disease unilateral; first degree.

Fig. 2.—Nasal outline. Disease unilateral; second degree.

Fig. 3.—Nasal outline. Disease bilateral; first degree.

1. The Conservative Treatment of Chronic Suppuration of the Frontal Sinus, Trans. of the Amer. Laryn. Assoc., 1895.

rhinitis are designated as presenting conditions which call for middle turbinectomy and not the whole complex of stages, forms and separate diseases which now fall under that one name. Nor is it meant that even suitable cases are thereby wholly curable, but only that drainage and cleansing being promoted a degree of improvement follows which, by comparison with the previous state, may amount to a practical cure. Michel[2] early sought to prove that the underlying cause of *rhinitis atrophi cans fœtida* is sinus suppuration—any sinus, large or small. Grunwald[3] followed with considerable proof that it was not a diffused, but a focal, suppuration which might be located either within or out of the sinuses. Bresgen[4] attributes it to suppuration in either the ethmoidal cells or sphenoidal sinuses and cites seven cases of recovery through curettage. Logan[5] ascribes it to suppuration of the ethmoidal cells, including the posterior, and cites four recoveries. Krieg[2] weighs the evidence pro and con, but leans toward the sinus theory. My own conviction is that certain types at least originate by suppuration, not in the larger nasal accessory sinuses, but chiefly in the cells of the ethmoidal labyrinth, in and around which putrefactive fermentation of the slowly escaping pus is facilitated by the small size of the cells and their anfractuous conformation, and that this pyogenic infection, though primarily focal, later may become more or less diffused over the general nasal surface. I am far from alleging, however, that all cases of atrophic rhinitis fall into this category, although an ever-increasing proportion of them I now record as ethmo-rhinitis atrophicans. I have selected for brief reference six cases from a total of twenty-four, because the consecutive steps in the atrophic process which they represent, as illustrated in Figures 1 to 6, constitute a convincing object lesson.

Fig. 4.—Nasal outline. Disease bilateral; second degree.

Fig. 5.—Nasal outline. Disease bilateral; one side shows first degree and the other side second degree.

Fig. 6.—Nasal outline. Disease bilateral; third degree.

In Figure 1 is shown the nasal outline of Miss P., aged 14, in whom the disease was strictly unilateral, a limitation recorded in three out of this series of twenty-four cases. The left inferior turbinal was atrophied, the meatus too spacious and incrusted; the left middle turbinal was enlarged and had a characteristic pultaceous glazed aspect, being bathed with a viscid mildly fetid secretion which appeared to proceed from the region of the ethmoidal labyrinth and which required a strenuous effort to clear away. The right nostril presented moderate hypertrophy, the patient stating that it was often "stopped," but had no disagreeable discharge like the left side. The condition was carefully studied for a time, a small adenoid being removed without benefit. I then made a total left middle turbinectomy, partial curettage of the ethmoidal cells and abscission of the opposing spur, thus securing a wide space and good drainage to replace the former point of compressed contact and confined secretion. The annoying discharge promptly changed in quality and diminished in quantity, a practical recovery soon following.

Figure 2 depicts the next step in the progress of the disease, which I will call the second degree. Miss P., aged 21, likewise had only one nostril affected, the inferior turbinal being atrophied and the middle turbinal still in a state of glary pultaceous enlargement. The advancement of the atrophic process is shown in the lessened breadth and concave absorption of the middle turbinal from pressure toward the septum by the expanded ethmoidal bulla—one of the affected cells. The turbinectomy included removal of part of the adjoining bulla and resulted in marked benefit, but being done years ago, the operation was less thorough than would now be made.

Figure 3, taken from Master F. V., aged 5, simply represents the common bilateral form of the same initial stage of atrophic ethmo-rhinitis that was shown in the first figure.

Figure 4, in the case of Mrs. K. S., aged 45, represents the bilateral form, which has advanced to the second degree, the same as depicted for the unilateral case in Figure 2. The operation on this patient was reasonably thorough, and resulted in pronounced and lasting diminution of the crust formation and fetor.

Figure 5 represents on one side the second degree of ethmo-rhinitis atrophicans, as above defined, and on the other side, in the same person, Mr. R. S., aged 28, what I judge to be the next step in the advancement of the atrophic process, hence termed the third degree, in which the middle turbinal is reduced to a mere rudiment. It is difficult to determine whether the slight prominence is really the remains of the turbinal itself or the proximal side of the ethmoidal bulla. The fact that the two conditions, respectively, affected symmetrical anatomic features at the same moment, with the bilateral presence of crustation fetor and lower turbinated shrinkage, indicates that these two degrees are results of the same pathologic process, although it is not alleged that their sequence is regularly in the order of one, two, three.

Figure 6, from Miss A., aged 17, represents the third degree, which is almost but not quite equally advanced on the two sides. In operating, in the left nostril I was able to insinuate my specially formed scissors below and above the anterior end of the rudimentary middle turbinal and to cause the wire to engage the rest of it, but in the right nostril the very slight prominence almost without a crevice beneath, afforded no adequate grasp for scissors and wire, only the smallest fragment being detachable in this way. In other words, Nature had already done a turbinectomy. It is in this manner, I would suggest, that Nature affords that considerable relief which is known to come to these patients late in life, the atrophic process itself operating in the end to improve the drainage.

34 Washington Street.

2. Cited by Krieg, Heyman's Handbuch d. Laryn. u. Rhinol., iii, 426.
3. Die Lehre von den Nasenelterungen, 1896, 66.
4. Münch. med. Wochschr., 1894, 10 and 11.
5. Trans. Amer. Laryn. Assoc., 1900.

[A GENERAL DISCUSSION ON ALL THE PAPERS ON THE TURBINATE WILL FOLLOW THE LAST PAPER OF THE SERIES, WHICH WILL BE PUBLISHED IN DUE COURSE.]

THE ROLE OF THE WOOD-TICK (DERMACENTOR OCCIDENTALIS) IN ROCKY MOUNTAIN SPOTTED FEVER,

AND THE SUSCEPTIBILITY OF LOCAL ANIMALS TO THIS DISEASE—A PRELIMINARY REPORT.*

H. T. RICKETTS, M.D.
CHICAGO.

THE TECHNIC OF FEEDING TICKS ON THE GUINEA-PIG.

Many embarrassments have been encountered in experiments in which the tick is allowed to feed on the guinea-pig. There are few spots on the body of the latter which he can not reach with his teeth or with the toes of his hind legs, and, since the bite of the tick is very irritating, ticks are frequently dislodged or killed, provided the guinea-pig is not restrained properly. The tick is prone to attach itself to the delicate hairless skin behind the ear or to the ventral surface of the body in the vicinity of the mammary glands. When in the former position it is readily dislodged by the nails of the pig's hind feet, and when in the latter position may be killed by biting. In order to obviate some of these accidents and to prevent the loss of valuable ticks, the following fairly satisfactory technic has been devised:

When testing or feeding an individual tick, the guinea-pig is placed in a pillory for a short time and the tick is allowed to attach itself to the ear or to the back of the head or neck. The pillory prevents the pig from scratching the head, and because of the temporary confinement he seems not to notice the presence of the tick until the latter is more or less firmly attached. Even under these conditions, however, the process is often tedious since the tick, before it is firmly attached, may be thrown off by a violent shake of the guinea-pig's head. After the tick appears to be attached, usually within ten to twenty minutes, the pillory with the pig in place is tied up in a sack having the bottom and sides of canvas and the top of cheese-cloth, this condition being maintained for one or two hours.

At the end of this time the animal is removed from the pillory and placed in a skeleton cage which is surrounded by a sack like that described above, a collar of light linoleum first having been placed about the neck of the pig. The collar is of such width (1 to 1½ inches) that it precludes scratching the head parts, and also prevents the biting of ticks which have become attached to the ventral skin. This width also permits the collar to rest on the bottom of the cage, thus removing the weight, which is slight, from the neck of the guinea-pig.

The cage is made of a frame of wood slats, and has a floor of 1/5 inch mesh wire, which is attached to the frame an inch above its bottom. This wire floor permits the escape of water and grain to the dead space below, and also gives free ticks refuge from the teeth of the guinea-pig, the mesh being sufficiently large to permit ticks of ordinary size to pass below.

When it is desired to feed a large number of ticks, the guinea-pig with its collar in place, is confined to the cage with the ticks at large, the latter being allowed to feed at will. Under this method large numbers of ticks can be fed with a minimal loss and a small expenditure of time.

INFECTION OF THE NYMPH.

Among a group of ticks received from Mr. F. D. Nichols of Hamilton, Mont., Jan. 1, 1907, were four nymphs. They had been taken from horses a few days previously, south of Hamilton, in a district not known to be infected with spotted fever. One of the nymphs was moribund at the time they were received.

January 3, at 5 p. m., the three remaining nymphs were placed on an infected guinea-pig (290), from which they were removed three days later. Guinea-pig 290 represented the eleventh consecutive guinea-pig passage of the strain which was obtained in the spring of 1906, the custom of infecting the monkey and guinea-pig alternately having been abandoned some time previously. Guinea-pig 290 ran a perfectly typical course clinically, the anatomic changes were characteristic and cultures from the heart and organs remained free from bacterial growth.

It was the intention at this time to place the nymphs individually on healthy guinea-pigs in order to test their infectivity. They entered the moulting stage, however, almost at once, and it was impossible to make this test.

Nymph 1 came out of its moult January 27, twenty-one days having been occupied in the process; whereas the moulting period of nymph 2 lasted thirty-four days. Nymph 3 died during the moulting period. Nymphs 1 and 2 appeared as females.

The further history of tick 1 is as follows: January 29 it would not feed. On February 2 it attached itself to the ear of guinea-pig 332, from which it was removed after fifty-seven hours. It had increased rather markedly in size during the feeding.

TEMPERATURE CURVE OF GUINEA-PIG 332.

February 4	102.6 F.	February 7	104. F.
February 5	103. F.	February 8	106. F.
February 6	102.2 F.	February 9	105. F.
February 10	Had been dead for some hours.		

Autopsy.—Enlarged and hemorrhagic axillary, inguinal and mesenteric lymph glands. Spleen was several times the normal size and of a deep bluish-red color, and rather coarsely granular. The suprarenal glands were much enlarged and congested. The kidneys and the liver were congested, but did not appear degenerated. The abdominal viscera showed postmortem discoloration. The heart, lungs and intestines were normal. The skin of the external genitals was not congested nor hemorrhagic, and no eruption was discernible on the skin. A plate culture from the heart's blood gave no bacterial growth.

Diagnosis.—Spotted fever.

The short incubation period, the sudden and high rise in the temperature of the animal and its early death are features which indicated a highly virulent infection. Under these conditions experience has shown that the skin manifestations do not always develop.

On account of postmortem changes in the viscera, transfer of the infection from the dead animal was not attempted.

Second Transmission.—On February 9, after an interval of five days, the tick became attached to guinea-pig 363, from which it was removed after feeding for twenty-two and one-half hours.

TEMPERATURE OF GUINEA-PIG 363.

February 11	103.4 F.	February 13	105.4 F.
February 12	103.8 F.	February 14	105.5 F.
February 15	105.2 F. Blood taken from the heart.		
February 16	104. F.	February 17	103.9 F.
February 18	103.8 F. Scrotum swollen and congested.		
February 19	Dead.		

Autopsy (Immediately after death).—Lymph glands were moderately enlarged and congested. No changes were found in the liver, lungs, heart or intestines. There were no cutaneous hemorrhages, but the skin of the face and external genitals was extremely cyanotic. A plate culture of the heart's blood remained sterile.

Diagnosis.—Spotted fever.

The 3 c.c. of blood drawn from the heart February 15 were injected intraperitoneally into guinea-pig 376 immediately. The following course of fever was recorded:

February 16	103.4 F.	February 19	105. F.
February 17	103.1 F.	February 20	106.2 F.
February 18	105. F.	February 21	105. F.
February 22	96.2 F. Killed by chloroform when moribund.		

The findings at autopsy were identical with those recorded above and need not be repeated. Plate cultures of the heart's blood, spleen and liver remained sterile. In making the plate cultures of the organs fragments of the tissues were triturated in bouillon and the emulsion thus obtained was mixed with the liquefied agar before plating.

Third Transmission.—On February 26 the tick attached itself to the ear of guinea-pig 406, where it was allowed to remain for thirty hours. On March 3 the temperature rose to 104.1 F., in the vicinity of which mark it remained until

* From the Pathologic Laborstory of the University of Chicago.

March 6, when the animal died. The anatomic findings were as described above, and cultures from the heart, liver and spleen were likewise sterile. The skin of the serotum was deeply congested.

The second nymph underwent a positive test on guinea-pig 364 on February 10, after a feeding period of twenty-two and one-half hours. Blood was drawn from the heart of this animal on the first day of fever (February 15) and 3 c.c. were inoculated into guinea-pig 377. The latter animal ran a typical course and was killed on the sixth day after infection in order to obtain material for the inoculation of monkey 26. The anatomic changes were characteristic and the bacteriologic result was, as usual, negative.

Ten cubic centimeters of defibrinated blood from guinea-pig 377 were given to monkey 26 intraperitoneally (February 21). The following course of fever developed:

February 22.....103. F.		February 25....105.3 F.	
February 23.....104.6 F.		February 26..... 105. F.	
February 24.....105. F.		February 27.....104.4 F.	

Killed February 27, the blood being utilized for various experiments.

The anatomic changes were typical and cultures from the blood and viscera gave no growth.

In order to test the validity of the experiment still further three guinea-pigs were inoculated with the blood of monkey 26. All three developed spotted fever, exhibiting typical symptoms and anatomic changes.

These results are of especial importance in two particulars: In the first place it must be considered that the tick, in its rôle as the carrier of spotted fever, is itself the victim of an infection; that the transmission is not purely mechanical. The following facts support this conclusion: First, the tick called nymph 1 retained its infectivity for fifty-four or fifty-five days, having in the meantime passed through the moulting stage. Whereas, outside the living body, the viability of the virus under the most favorable conditions, i. e., in the ice chest and in the dark, is less than half this period, and may be only one-third as long.

If we assume that the virus could have remained in a moist condition on the mouth parts of the tick, infectiousness would have been retained no longer than seven or eight days, since under the conditions surrounding the tick, i. e., in diffuse light and at room temperature, the virus in one experiment lived approximately a week (from unpublished experiments). It is quite certain, however, that the virus would not remain in a moist condition on the mouth parts of the tick, but, on the contrary, that it would become dried speedily. Extreme desiccation over sulphuric acid usually destroys the virus in from twenty-four to forty-eight hours. It is probable that desiccation as it occurs under natural conditions of temperature and atmospheric moisture would not destroy the virus so soon, but it would be difficult to believe that its life could extend for fifty-four days under such circumstances.

The experiments quoted afford, in addition, some positive evidence that the virus proliferates in the tick. I have never found the blood of animals suffering from spotted fever to be infective in doses under 0.05 c.c., and usually the minimal pathogenic dose is nearer 0.1 c.c. the tick, nymph 1, infected three guinea-pigs at successive intervals, and if we assume that the blood by which the tick was infected possessed the highest virulence, and that the virus underwent no proliferation in the tick, it would have been necessary for the tick to ingest 0.15 c.c. of blood, at least, in order that it might later infect three guinea-pigs. This volume of 0.15 c.c. is greatly in excess of that of the tick, since in this instance the adult was of unusually small size. Hence it seems necessary to conclude that the tick becomes infected, that the virus proliferates in its body, and that on biting the guinea-pig the virus, equivalent in quantity or virulence to that contained in 0.05 to 0.1 c.c. of blood from an infected animal, is in some way injected.

In the second place these results have an important relation to the disease as it occurs in the Bitter Root Valley and other localities. They indicate that the adult tick which infects man in the spring does not of necessity acquire its own infection in the spring, but may have acquired it by biting any one of several possible hosts during the autumn or winter when in the nymphal stage.

It may with some reason be suggested that the experiments cited above do not prove that these ticks acquired their infection when in the nymphal stage, but, on the contrary, that they had become infected under natural conditions, that perhaps they were infected as larvæ, or that they derived their infection from the parent tick through inheritance. The possibility of these events can not be denied, although the fact that the ticks came from a vicinity not known to be infected makes it rather improbable.

Experiments are now being conducted to determine the possibilities of infecting the larvæ and of hereditary transmission, and they will be reported at a future time.

OTHER EXPERIMENTS WITH THE "WOOD-TICK."

Transmission of Rocky Mountain spotted fever by means of the adult female has already been reported by King[1] and by me,[2] and I have also reported[3] transmission by means of the adult male tick.

By means of ticks obtained from Montana in the early part of 1907 I have repeated these experiments many times. At present I shall only relate the main facts concerning the positive results, adding the statement that many irregularities have been met with, and that the ease with which individual adults become infected is subject to considerable variation.

Male tick 7 produced a course of fever in guinea-pig 339 which lasted for seven days. The animal recovered and one month later died of a bacterial infection. Female tick 4 fed on an infected monkey (22) for six hours and forty minutes, Jan. 12, 1907. Subsequent tests of a thorough character on guinea-pig 315 during the next month demonstrated that the tick had not become infected from the monkey. February 9 the tick fed on an infected guinea-pig (333) for twenty-two hours. Nine days later it was allowed to feed on a normal guinea-pig (381) for twenty-two hours. This animal died in two weeks with anatomic changes which were not characteristic of spotted fever and the test was thrown out. A second test was made February 26 (guinea-pig 404), the animal showing a course of fever, and at its death in nine days, anatomic changes which are characteristic of spotted fever in the guinea-pig. Other successful tests were made on guinea-pig 417, March 7, and later in conjunction with other ticks. Guinea-pig 415 was bitten by female ticks 4 and 7. After an incubation period of forty-eight hours fever developed, and the animal died in five days after the ticks were first attached. A similar result has been obtained several times by permitting more than one infected tick to bite a guinea-pig, hence it is very probable that the virulence of an infection has a relation to the number of infected ticks which feed on the animal.

Female tick 7 did not become infected after feeding on monkey 22 for fourteen hours, as shown by a test on guinea-pig 320, and on other pigs during the course of the next month. February 10 it was allowed to feed on an infected guinea-pig, the duration of the feeding not being noted. Ten days later

1. Public Health Reports, July 26, 1906.
2. THE JOURNAL A. M. A., August 4, 1906, 358.
3. Jour. Infect. Diseases, Jan. 1, 1907, 151.

the disease was transmitted to guinea-pig 386, on which the tick fed for thirty hours.

Female tick 8 did not become infected after feeding on monkey 22 for eight and three-fourths hours. Two subsequent attempts to infect this tick failed, one feeding having lasted twenty-four hours and the other fifteen hours. Similar experiences have been encountered with several females and with many males. Female 8 subsequently died in a blackened state, when filled with blood.

Females 12, 14, 15, 17, 18, 19 and 20 were infected by single feedings which lasted from twenty to thirty hours. This was, of course, proved by tests on normal guinea-pigs.

Guinea-pig 431, bitten by female tick 17, was infected and died of spotted fever after the unusually long incubation period of eleven days.

The experience of the past winter has shown that it is much more difficult to infect the adult male than the female tick. This may have a direct relation to the fact that the male is less voracious in its feeding than the female, that it ingests a smaller quantity of blood, and hence has less chance of becoming infected.

Concerning the mechanism by which the tick produces infection, it is possible to produce only hypotheses at this time. That the tick injects a toxic secretion into the skin is manifest from the erythema, edema and softening of the epidermis which accompany the bite. Not infrequently a small area of tissue sloughs after the tick is removed. In all probability the secretion of the salivary glands is responsible for these local manifestations. It is certain that the latter have no relation to spotted fever, since they are produced by normal as well as by infected ticks. In all the experiments so far, both by the artificial inoculation of blood and by the bite of the tick, there is no reason to believe that the deposition of the virus produces a visible local reaction in the subcutaneous tissue.

That the virus of spotted fever is introduced by the tick with the salivary secretion is the most plausible assumption, although the possibility of infection by regurgitation from the alimentary tract remains for consideration.

ADDITIONAL NOTES ON THE LIFE HISTORY OF THE WOOD-TICK.

Any observations throwing light on the life cycle of the wood-tick (*Dermacentor occidentalis*) are important, because of the relation which this arachnid bears to the spotted fever.

In a previous article[4] I gave a short account of the life history of the wood-tick as it was observed under artificial conditions in a single instance. The life cycle was observed from the time the female began to lay her eggs, June 21, until the young had emerged from their second moult as young adult ticks about September 10, a period of somewhat less than three months. Through accidents it was not possible to preserve the new brood until they had ripened sexually, hence to this extent there exists a temporary gap in my observations. Inasmuch as adult ticks are rarely found in the autumn in the Bitter Root Valley, it seems evident that the comparatively rapid evolution of the cycle in the experiment cited was due to the presence of a host constantly and to the rather warm temperature under which the experiment was conducted.

In order to determine with some exactness the form in which the tick survives the winter and under what conditions, the Bitter Root Valley was visited in December, 1906. Various theories exist, locally, in reference to this point, the two more prevalent being, first, that the arachnid secretes itself under stones, beneath the bark of dead trees, or that it burrows into rotten stumps to remain there until spring; second, that ticks may be found on horses and cattle in the hills during almost any month of the winter.

Both possibilities were investigated, the former resulting largely in failure. One individual who felt perfectly confident concerning the first theory failed to discover ticks in the suspected localities after several days' search, and my own attempts were as fruitless. That the tick may occasionally be found apart from living animals in midwinter was shown by a miner who, the day before I saw him, had found one in the tunnel of his mine.

The second theory soon found ample verification, and through the kindness of Mr. F. D. Nichols, of Hamilton, Dr. E. F. Dodds and Prof. M. J. Elrod, of Missoula, I received during January and February several hundred ticks which had been picked from horses brought in from the hills for this purpose. Among those received early in January nearly all were in the second moulting stage and after varying periods emerged as adult ticks. With them, however, were four nymphs which had fed moderately and were more or less distended, and a few which had cast off the second skin. The nymphs were those used in the experiments cited above. During February all the ticks received were either in the second moulting stage or had emerged from it.

Early in March I obtained from Mr. Nichols about thirty adult females which were greatly enlarged, and some of which began the deposition of eggs within a few days.

In the laboratory experiment cited above it was noted that the ticks left the guinea-pig when they had developed sufficiently to moult. This appears not to be the rule, however, since a very large percentage of the ticks which were in the second moult when received still grasped lamellæ of dried epidermis with their mandibles, the softened epidermis having been torn loose at the time the ticks were removed.

It seems probable that the appearance of the "wood-tick" of Montana in an overwhelming "crop" during March, April and May, and its apparent absence during other periods are the results of climatic conditions, and that it is prevented from being a perennial pest only on account of these conditions. It seems to be only ignorance of the nature of the larval, nymphal, and moulting forms which has created the impression in the Bitter Root Valley that the tick disappears entirely in July to reappear only when spring comes. Description of these forms to residents has frequently shown that they have been observed, although not identified.

Examples of exceptional development have been reported to me a number of times, such as the precocious appearance of a few adult ticks in the late summer or fall. I was shown a larval tick which had attached itself to the ear of a child in December, and in April a nymph obtained from a similar source. It may be assumed that the larva seen in December represented eggs which were laid late in the summer or in the fall rather than in the early summer, and that the nymph seen in April came from an egg which had been deposited unusually early in the spring or unusually late in the fall. These examples of precocious or tardy appearance of the tick may well have a relation to the rare occurrence of spotted fever so late as August, or so early as February, rather than during the months of spring at which time the disease prevails habitually.

4. Further Observations on Rocky Mountain Spotted Fever and *Dermacentor Occidentalis*, THE JOURNAL A. M. A., Oct. 6, 1906, 1057.

It is difficult for the residents of the Bitter Root Valley to believe that the tick lives exclusively as a parasite on animals, on account of the widespread and more or less uniform distribution of the arachnid in nature. It is thought it must live to some extent at least on vegetable or on dead insect material. There is as yet no direct evidence to support this suspicion.

It is true that among the foothills the tick seems to be omnipresent, yet the uniformity of its distribution even in these localities is open to doubt. It is not uncommon to learn from a ranchman that more ticks may be found on one hill than another which is in close proximity. Horses and cattle roam practically all the foothills to some extent, especially during the fall and winter. During their residences in such places they collect innumerable ticks, probably in the form of larvæ chiefly. The young ticks grow and moult on the host and when they reach adult form one would be safe in assuming that large numbers drop off, or are rubbed off against bushes and small pines by the animals. A high wind may be an important factor in desseminating ticks, for a ranchman related his experience in driving home one evening in the spring during a violent windstorm. He felt particles striking his face and clothing, and on reaching home found a large number of ticks on his clothing. From my own experience I can state that ticks climb small pines to at least the full height of a man. It is probable that they ascend higher than this, and they are so light that without doubt they could be easily carried by a strong wind for some distance.

It is another fact of importance that the tick has increased greatly in numbers since the valley has been well settled and the quantity of the stock has increased. This is agreed to by all who have lived long in the valley.

CONDITIONS IN THE LO LO VALLEY.

The conditions in the Lo Lo Valley during the past two years are very important. Lo Lo Creek is tributary to the Bitter Root River, and its valley for some years has been considered as badly infected. In 1906 this locality had no infections, and there was hope that the disase had died out there. If the disease is kept alive by ticks which have bitten infected men, there would be some ground to hope that a year without an example of infection in man might result in the disappearance of the disease. If after a year of no infections cases did appear in the following year, three possibilities present themselves in the way of explanations: 1, Certain ticks may live for two years instead of one year, the latter being the usual period of life; 2, the virus may be transmitted through two generations of the tick without its renewal from an infected host; 3, each generation of ticks may acquire the disease afresh each year from some susceptible host other than man (see below). There is not sufficient ground at present for considering a fourth possibility, that the tick becomes infected from decaying organic matter.

As stated, no cases occurred in the Lo Lo Valley during 1906, and but one has appeared in 1907. It is hoped that the first two possibilities can be decided experimentally.

SUSCEPTIBILITY OF THE GOPHER AND OTHER ANIMALS.

The third possibility mentioned above, that spotted fever may be kept alive in a susceptible host other than man, has received some support this year. Assisted by Mr. P. G. Heinemann, I have found that the indigenous gopher or ground squirrel[5] may be infected by inoculation and that one attack confers immunity to second inoculations. Its susceptibility is much less than that of the guinea-pig and is not perfectly uniform. The disease was again conveyed to the guinea-pig from the inoculated gophers. I do not maintain at this time that the gopher exclusively is responsible for the maintenance of the disease, although this is possible.

The susceptibility of other animals found in the valley is being investigated. Dr. William M. Chowning cooperated with us in the inoculation of a horse, which received about 60 c.c. of blood subcutaneously from infected guinea-pigs. After a brief incubation period, the animal ran a short but rather high course of fever. The horse resisted entirely a second inoculation of 60 c.c. of infected blood from man and monkey, the experiment being conducted by Mr. Heinemann and myself. Assisted by Mr. Heinemann, a second horse was inoculated with 10 c.c. of infected blood from man. No distinct reaction followed. A calf, 2 weeks old, failed to react following the inoculation of over 30 c.c. of blood from infected guinea-pigs.

INFECTED TICKS IN NATURE.

Although the experimental transmission of Rocky Mountain spotted fever by means of the "wood-tick" attracts the gravest suspicion to this arachnid as the agent of infection under natural conditions, the theory of tick-transmission can not be considered as proved circumstantially until infected ticks are discovered in nature. Assisted by Mr. Heinemann,[5] it has been possible to demonstrate that infected ticks do exist under natural conditions on the west side of the Bitter Root Valley. The ticks were collected from vicinities in which the disease appeared this year, partly from horses and cows and partly from the woods.

A group of thirty-six males taken from the vicinity of Mr. Hickey's ranch produced the disease in guinea-pig 596, which presented a typical clinical course with scrotal hemorrhages, and died in twelve days after the ticks were first attached. The anatomic changes were characteristic of spotted fever in every detail, as it occurs in the guinea-pig, and cultures from the heart, liver and spleen remained free from discoverable bacterial growth.

I take the position that these experiments connect the tick unmistakably with the occurrence of spotted or tick fever of man in the Bitter Root Valley, and that without them the "tick theory" would lack essential support.

5. The following experiments, with others, will be reported in detail, in conjunction with Mr. Heinemann in the near future.

A CLINICAL STUDY OF BLOOD PRESSURE VARIATIONS IN DIABETES AND THEIR BEARING ON THE CARDIAC COMPLICATIONS.*

ARTHUR R. ELLIOTT, M.D.
CHICAGO.

The pathologic conditions of the circulation in diabetes and their bearing on the prognosis of that disease have been made a subject for publication by a number of observers, including Jaques Mayer, O. Israel, Schott, von Schmitz, Ebstein and Leonard Weber. My purpose in reopening the subject for discussion is to consider the question from the vascular standpoint and to submit certain observations on blood pressure in diabetes which I have conducted, covering a period of two years.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Reports differ widely as to the condition of the heart in diabetes. There are undoubtedly many cases in which the heart is normal or where the state of the organ corresponds to the general nutritive condition. It would be an amazing exception to the rule of toxic degenerations if the circulatory system could withstand without detriment the irritation of so prolonged and in many cases so intense a toxemia as characterizes this disease, and consequently it is not surprising that in a considerable percentage of cases some degree of cardio-vascular impairment is discoverable.

Saunby states that in 40 per cent. of his cases the heart was free from noticeable changes. In about an equal proportion it was found to be pale and soft, and in 13 per cent. enlarged. O. Israel found cardiac enlargement in 10 per cent. of cases observed. J. Mayer records an average of 21.6 per cent. of cardiac enlargements in his first series and 27 per cent. in his second series. Virchow's autopsy reports yield a total of 13 per cent. cardiac enlargements. The average for these assembled statistics is 17 per cent. cardiac hypertrophy in diabetes. No accurate particulars are forthcoming regarding the age of patients and duration of the disease. Some degree of renal change was a pretty constant accompaniment. In the severe toxic forms of diabetes the renal condition is either a functional hypertrophy or hyaline degeneration of the tubular epithelium. In the chronic milder type of cases the renal alterations are frequently of the nature of chronic nephritis.

In rapid progressive forms of diabetes occurring in young, spare individuals cardiac hypertrophy is seldom encountered, the myocardial changes being fatty rather than hyperplasic. The histologic changes in the heart wall in this type of case are neither pronounced nor definite. The myocardium may be pale and soft, or more rarely show marked fatty changes, with brown atrophy. Glycogen granules have been found between the muscle fibers (Frerichs). Degenerative conditions of the myocardium are probably much more rarely detected during life than after death, unless attention is called to their existence by pronounced symptoms. The acid intoxication and emaciation of inveterate forms of diabetes produce grave cardiac under-nutrition, with enfeeblement of the organ. The supreme result of this cardiac weakness was pointed out by von Schmitz, who described a condition of collapse or syncope from asystole, characterized by a very rapid, weak pulse, cold extremities, but without the peculiar panting respiration which marks true diabetic coma.

In seeking an explanation for the frequent existence of cardiac impairment in diabetes the state of the circulation is of the first importance. The introduction of methods for the clinical estimation of blood pressure furnishes us with the means for determining whether or not this factor is of importance in producing secondary cardiac defects in diabetes in somewhat the same manner as in other chronic intoxications. Very little light has as yet been thrown on this question. Such information as is forthcoming from a study of the literature consists mainly in dogmatic assertion unsupported by adequate statistics. Potain[1] stated in 1902 that the blood pressure is notably high in diabetes, surpassing even that observed in Bright's disease. This statement has found wide currency. Tiessier[2] states that in his opinion diabetes is one of the three great hypertensive diseases, classing it in this regard with aortic insufficiency and interstitial nephritis. He qualifies this sweeping statement by excluding the type of lean diabetes, that is so often complicated with pulmonary tuberculosis, in which he states we may observe hypotension instead of hypertension. Vaquez[3] reports that he had never found an elevated arterial tension in diabetes. Ott[4] reports observations on two cases, one with systolic pressure of 225 mm. in an old man with albuminuria and glycosuria; a second in a man of 40 with 6 per cent. of sugar, having a systolic blood pressure of 105 mm. Hensen includes in his records[5] two cases of diabetes with hypotension. Janeway[6] states that he has seen both high and low blood pressure in diabetes, the latter in severe cases, with marked emaciation and diacetic acid in the urine, the former, especially in the milder forms of the disease, in stout, elderly people, where chronic nephritis or arteriosclerosis existed.

The foregoing statements and observations practically cover the question as it stands to-day. It is apparent that they do not furnish an adequate basis on which to judge the matter, for besides lacking support from statistical observations, they are conflicting in character and leave the question in all essentials an open one. The observations submitted herewith are offered as a contribution toward its more accurate solution.

My observations cover a series of twenty-five cases of diabetes of different types, at all ages, taking them as they came under treatment for the disease. The majority of the cases were observed in private practice, a few in hospital and dispensary work. The instruments employed were Stanton's sphygmomanometer, with a 12

TABLE OF DATA OF DIABETIC PATIENTS.

Number	Sex	Age	Body Weight Pounds.	Maximum Glycosuria per ct.	Acetone Bodies	Albuminuria	Maximum Systolic Blood Pressure mm.	Minimum Systolic Blood Pressure mm.	Average Systolic Blood Pressure mm.	Complications
1	F.	21	134	1.66	0	0	120	108	114	
2	F.	46	113	4.	0	0	140	130	137	Gallstones.
3	F.	54	185	3.33	0	0	140	—	140	
4	M.	28	130	4.	++	++	105	95	100	Alcoholism.
5	M.	46	122	3.33	+	+	125	85	100	Carbuncle, neuritis, one attack of epilepsia acetonica; Death in coma.
6	M.	56	176	2.75	0	+	156	135	147	Arteriosclerosis, myocarditis, cerebral thrombosis.
7	M.	24	136	4.	+	+	105	80	95	
8	F.	71	186	1.66	0	0	150	145	147	Arteriosclerosis, card. hypertrophy.
9	F.	50	152	2.	0	0	125	120	122	
10	F.	56	195	6.66	0	+	228	200	210	Chron. nephr., card. hypertrophy, hemor. retinitis, gallstone.
11	M.	56	205	1.	0	0	115	115	115	
12	M.	48	207	2.50	0	0	125	120	122	
13	M.	36	135	5.	+	+	110	90	100	Death in coma.
14	M.	29	133	3.75	+	0	102	100	100	
15	F.	35	149	3.	+	0	115	105	110	
16	F.	55	137	3.	0	+	165	140	150	Chron. neph., card. hypertrophy.
17	M.	54	160	3.	0	+	165	130	145	Chron. neph., retinitis, double mitral lesion, Graves' dis.
18	M.	60	185	1.33	0	0	145	140	142	Arteriosclerosis.
19	M.	76	210	1.66	+	+	173	165	170	Arteriosclerosis, myocarditis, one attack card. syncope.
20	F.	75	160	3.	0	0	140	140	140	Gallstones.
21	F.	21	107	3.	+	0	125	105	115	Graves' disease.
22	M.	13	76	5.	+	0	90	...	90	
23	F.	26	115	4.	+	+	125	80	95	Death in coma. Sister of patient 13.
24	F.	56	150	2.	0	0	170	165	168	Uterine fibroids. Operation.
25	M.	46	237	2.50	0	0	110	105	107	Chron. appendicitis. Slight pyrexia.

1. La pression arterielle de l'homme à l'etat normal et pathologique, Paris, 1902.
2. Gazette des Hôpitaux, Nov. 8, 1904, 1243.
3. Gazette des Hôpitaux, Nov. 3, 1904, 1221.
4. Montreal Med. Jour., November, 1902.
5. Deutsche Archiv. f. Klin. Med., 1900, lxvii.
6. The Clinical Study of Blood Pressure, 1904, 236.

V 4
190

cm. arm-band for office readings, and Cook's modification of the Riva Rocci instrument, with 9 cm. arm-band, for bedside observations. A total of one hundred and fifty observations was made. In all of the cases except two (Nos. 3 and 22), numerous readings were taken. In many of the cases, especially those of the severe type, it was found exceedingly difficult to secure satisfactory estimations of diastolic pressure with the instruments employed, and for this reason only the records of systolic pressure are included in the table submitted:

SUMMARY OF BLOOD PRESSURE RECORDS.

Number of cases observed	25
Males	13
Females	12
Average age of patients	45
Average weight of patients (pounds)	156
Average systolic blood pressure (mm.)	127

Age is the most important factor in influencing the type of diabetes. It is well known that the disease is less severe and progressive in the stout and elderly than in young, spare individuals. The age of 50 years often proves to be the deciding factor between the severe toxic form of the disease and the chronic mild type. In the series under consideration thirteen patients were under 50 and twelve over that age. The average blood pressure of the former was 107 mm. and of the latter 150 mm. Their average weight was 138 for those under 50 years and 175 for those over that age. Age and weight are consequently seen to exert a marked influence in determining the degree of blood pressure. Acid intoxication (diaceturia) was observed in nine of the thirteen cases under 50 years of age and in only one of those over 50. The intensity of the glycosuria was apparently without effect in increasing the degree of blood pressure. Fifteen of the series observed presented a maximum glycosuria of over 3 per cent. The average blood pressure in these cases was 121 mm. In the remaining ten cases the blood pressure averaged 135 mm.

If we are justified in drawing any conclusion from these figures, it is that an inverse rather than a direct ratio exists between the degree of glycosuria and height of blood pressure. This is really no more than we might expect, in view of the fact that the milder types of diabetes are observed in elderly people who are apt to have arteriosclerosis and in consequence higher average arterial pressures.

Perhaps the most interesting point involved in the present inquiry is the effect of the acid intoxication of diabetes on the blood pressure. In my series there are ten cases which developed acetonuria and diaceturia. The toxemia proved to be permanent in all cases except one (No. 19), although it fluctuated considerably in intensity from time to time.

Number of cases with acid intoxication	10
Average age	33
Average weight	131
Average systolic blood pressure (mm.)	107
Number of cases without acid intoxication	15
Average age	53
Average weight	172
Average systolic blood pressure (mm.)	140

The marked difference in the average values between patients with and without acid intoxication and the apparent disposition to hypotension in the former type of cases suggests a direct depressive influence on the circulation, exerted by the acid toxins in diabetes. Before ascribing any such influence the matter is to be examined further. These patients are invariably asthenic in type and display the general causes of low pressure, i. e., emaciation, malnutrition, mental depression, which produce subnormal values in tuberculosis and the cachectic states generally. To these factors rather than to the acid toxins direct I believe are to be attributed the falling blood pressure curve.

I cite a condensed abstract of weight, pulse, blood pressure and urine records of two cases carefully observed:

CASE 7.—Age 24. Diabetes first discovered in August, 1905.

				Urine	
Date.	Weight.	Pulse.	Blood pressure, mm.	Glycosuria, per cent.	Acetone. Bodies.
Feb. 3, 1906	136	78	104	3.33	Absent.
Feb. 6, 1906	138	76	105	....	Absent.
Feb. 13, 1906	143	72	90	2.50	Traces.
Feb. 21, 1906	141	78	100	2.	Traces.
Feb. 24, 1906	143	66	90	1.66	Absent.
Feb. 28, 1906	141	72	108	2.25	Absent.
Feb. 20, 1907	138	63	80	4.	Marked.
Feb. 25, 1907	138	70	95	2.85	Marked.
March 1, 1907	135	78	100	2.50	Marked.
March 4, 1907	135	80	88	1.50	Marked.
March 6, 1907	133	80	80	3.	Marked.

In the year elapsing between Feb. 28, 1906, and Feb. 10, 1907, I am informed by patient's family physician, he was free from acid intoxication, and remained in fair activity, following his occupation.

CASE 5.—Age 46. Disease first discovered October, 1905.

				Urine	
Date.	Weight.	Pulse.	Blood pressure, mm.	Glycosuria, per cent.	Acetone. Bodies.
Jan. 3, 1906	122	90	125	3.33	Traces.
Feb. 10, 1906	116	90	120	2.	Traces.
Feb. 26, 1906	121	90	120	1.25	Traces.
March 12, 1906	120	78	120	1.66	Traces.
March 19, 1906	122	96	110	2.50	Traces.
April 2, 1906	121	90	105	1.21	Moderate.
April 23, 1906	121	84	110	2.	Moderate.
May 7, 1906	121	90	120	2.	Moderate.
May 24, 1906	121	78	112	2.	Moderate.
June 10, 1906	120	72	100	1.66	Moderate.
July 12, 1906	118	84	110	2.	Marked.
Oct. 9, 1906	114	76	110	2.	Marked.
Nov. 8, 1906	114	78	120	2.50	Marked.
Nov. 29, 1906	110	90	120	2.	Marked.
Dec. 10, 1906	110	90	100	2.50	Marked.
Jan. 8, 1907	110	90	110	2.66	Marked.
March 13, 1907	100	90	105	3.	Intense.
May 21, 1907	?	96	100	3.	Intense.
June, 1, 1907	Death in coma.				

If these records are carefully examined it will be found that while undoubtedly the blood pressure falls progressively during the stage of acid toxemia, it does so in association with a falling weight curve and increasing weakness—evidences of malnutrition which underly hypotension in chronic nutritive diseases generally. I agree with Janeway in thinking that the progressive emaciation and cardiac weakness cause the hypotension in severe cases of diabetes rather than the acid intoxication *per se*. The point is difficult to determine and perhaps not essentially important, inasmuch as the acid intoxication and malnutrition of inveterate diabetes run hand in hand.

In the tabulated record a note is made of the various complications found in many of the cases. It is of importance to appraise the influence of these various factors on the blood pressure record. In a certain number of cases chronic albuminuria was present, unassociated with diaceturia. These cases number five in all, only one of them displaying a slight and transient diaceturia (No. 19). Without exception these five cases gave definite clinical indications of arteriosclerosis or chronic nephritis. The average blood pressure was 164 mm. In five other cases albuminuria developed in small amount late in the disease, associated with prolonged intense diaceturia (acidosis). In these cases the average systolic blood pressure was 98 mm. This observation would indicate that albuminuria occurring as a result of toxic irritation of the kidneys from acid toxins in the urine and hyperfunction has no effect in increasing the blood pressure. The high blood pressure value of the first group is attributable to the complications causing the albuminuria (arteriosclerosis, chronic nephritis).

The only high blood pressures observed in the series herewith reported, with one exception, were noted in association with arteriosclerosis and chronic nephritis. Four cases (Nos. 6, 8, 18, 19) having marked arteriosclerotic manifestations gave average pressure values of 151 mm. Three cases (Nos. 10, 16, 17) complicated with chronic nephritis averaged 168 mm. One patient with uterine fibroids had a systolic blood pressure of 168 mm.

Nowhere in these records do we find the excessive hypertension declared by Potain and Tiessier to characterize diabetes. The only case displaying excessive pressure is Case 10, a female with chronic diabetes association with gallstones and chronic interstitial nephritis. The high blood pressure in this instance is fully accounted for by the complications. Indeed, if we are to accept the indications of this investigation, complications are the only factors making for high pressures in diabetes, and especially is this true of arteriosclerosis and chronic nephritis, both of which are hypertensive diseases. The average systolic blood pressure of cases with arteriosclerosis was 151 mm., and of those with chronic nephritis was 168 mm. After deducting from the series reported the cases complicated with arteriosclerosis and chronic nephritis, we find the average systolic blood pressure of the remaining eighteen to be 115 mm.—a normal average. It is well known that a strong predisposition exists in chronic forms of diabetes to the development of arteriosclerosis. The frequent association of the gouty and obese diatheses with this class of cases may help to explain this tendency to degenerative arterial change. Obesity or gout pre-existing for years before the development of diabetes may carry the individual well along the road to cardiovascular degeneration before glycosuria is discovered. In some cases there undoubtedly coexists the causes of cardiac hypertrophy from associated chronic nephritis—a not infrequent complication.

Albuminuria associated with diabetes, when due to chronic nephritis or renal sclerosis, shows increased pressure values, although toxic albuminuria due to the acid intoxication of diabetes exerts no such influence. There is nothing to show that myocardial and vascular degenerations of the chronic type of diabetes are essential to that disease. All the evidence points to the fact that the complications, especially arterial sclerosis and chronic nephritis, bring about the cardiovascular secondaries. The cardiac hypertrophy noted by pathologists is attributable to these causes and not to the diabetes *per se*.

In the severe progressive forms of diabetes met with most frequently in young, spare individuals arteriosclerosis and cardiac hypertrophy are not frequent or prominent developments. We have seen that the cardiac condition is one of enfeeblement, the myocardial changes being fatty rather than hyperplastic. Marked hypotension characterizes the arterial condition in this form of diabetes—as low reading as 80 mm. being obtained.

These patients are invariably asthenic, emaciated and depressed, and there is much reason to believe that general adynamia rather than special toxic influences are at work to produce the falling blood pressure values of severe cases of this type. The cardiac condition is a progressive exhaustion, eventuating in certain cases in cardiac collapse. The enfeeblement of the organ under these circumstances merely constitutes a part of the general denutrition and weakness. From this standpoint the myocardial changes and "cardiac collapse" described by von Schmitz in inveterate cases of diabetes can hardly be viewed as essential diabetic phenomena, inasmuch as we encounter very similar changes and a like mode of death in other severe exhausting diseases, such, for instance, as pernicious anemia and pulmonary tuberculosis. The attempt to establish the existence of certain cardiac conditions peculiar to diabetes—in other words, a "diabetic heart," has on examination little justification. None of the evidence forthcoming from an investigation of blood pressure conditions in this disease lends itself to such a theory.

The blood pressure observations submitted herewith furnish positive confirmation of the opinion expressed by Janeway in his excellent book[6] that "The disease of itself is without influence on arterial pressure; the occurrence of chronic nephritis or arteriosclerosis or angiosclerosis as a complication explains the hypertension, and the resultant emaciation and brown atrophy or fatty change in the heart causes the hypotension in severe cases."

103 State Street.

LATENT DIPHTHERIA.

A PUBLIC HEALTH PROBLEM.*

MYER SOLIS-COHEN, A.B., M.D.
Instructor in Physical Diagnosis, University of Pennsylvania,
PHILADELPHIA.

CAUSES OF DIPHTHERIA PREVALENCE.

From the public health viewpoint, diseases are studied in order to prevent their spread. Effective prophylactic measures, based on scientific observations, have caused some infectious diseases to disappear from civilized communities, while others have become comparatively rare. Yet, despite the ever-increasing knowledge as to its bacteriology and methods of propagation, diphtheria still remains a fairly common affection. Why is this?

One reason is that only the well-marked cases are isolated and placarded, while persons suffering from the milder forms of diphtheria are permitted to walk the streets, attend school and frequent public places. Another unguarded avenue of contagion is kept open through the false sense of security given by the rules now in vogue as to disinfection. Fomites, which, as shown by Chapin,† Hill, Weichard and Welch, only rarely contain the germs, are required to be disinfected, while no attention is paid to the virulent bacilli which so frequently are present and persist for long periods in the noses or throats of persons with whom the patient has been in just as intimate contact. The fault lies partly with physicians who do not recognize the latent forms of diphtheria and partly with sanitary officers who fail to seek out and guard as sources of infection all those who are liable to transmit the disease.

THE AUTHOR'S CASES OF LATENT DIPHTHERIA.

I have seen twenty-seven cases of latent diphtheria, most of them in my capacity as assistant medical inspector of the Philadelphia Bureau of Health. I regard as diphtheria any pathologic condition, local or general, due to infection by specific diphtheria organisms, as defined by Williams, and apply the term latent to those forms unassociated with pseudo-membrane.

CASE 1.—J. S., a schoolgirl of about 12 years, presented enlarged and reddened tonsils on April 29, 1904, and was excluded from school for tonsillitis. A culture taken at the time

* Paper read at the fifty-sixth annual session of the Medical Society of the State of Pennsylvania at Bedford Springs, Sept. 11 to 13, 1906.

† Lack of space prevents the usual bibliographic references to journals and other sources of information.

and one taken later both contained diphtheria bacilli. The girl was not sick at any time.

CASE 2.—N. McL., a girl of about 15 years, had been undergoing treatment by her family physician for chronic sore throat. She complained of pain in the throat and a general feeling of soreness in the body while at school May 12, 1904, and on examination her tonsils were found to be red and swollen. She was excluded from school for "rheumatic sore throat." A culture showed the presence of diphtheria germs. Despite active treatment by means of disinfectant sprays, swabbings and gargles, the diphtheria bacilli persisted in the throat until May 23. The girl felt perfectly well generally the day after she was sent home, but on May 20 the throat was still sore.

CASE 3.—W. L., had a reddened throat and seemed to have fever in school on May 7. Bacteriologic examination was positive. In a day or two the throat was normal. The boy was never sick. Yet the diphtheria bacilli persisted for five days.

CASE 4.—G. W., boy, aged about 15 years, on May 9, at school, presented a reddened throat, a culture from which proved positive. The boy felt perfectly well and the next day his throat was normal in appearance. The bacilli nevertheless persisted for five days.

CASE 5.—C. R., a boy of about 8 years, was excluded from school for tonsillitis, his tonsils being reddened and swollen. He returned in a week with the throat condition unchanged and was again excluded. He had been without medical treatment. On May 12 he returned without showing improvement, and a culture was taken which proved positive. The child was not sick, but looked unhappy.

CASE 6.—F. C., a little child in a home for colored cripples, had been exposed to true diphtheria on May 15; her fauces were reddened and contained diphtheria bacilli. Her throat did not feel sore. It was examined on several occasions and never gave any evidence of diphtheria. The child was well and playing around. She was given no antitoxin.

CASE 7.—S. S., a child in the same home, was exposed to the same contagion. Her throat, though practically negative when examined on May 17, contained diphtheria bacilli. The child's pulse was rapid. There was no other sign of diphtheria.

CASE 8.—J. A., another child exposed to diphtheria in the same home, was given an immunizing dose of 500 units of antitoxin, although her throat on May 15, gave a negative culture. On May 22 she complained of her throat feeling sore, and though on inspection the throat looked clear, a culture proved positive. The child was well and about.

CASE 9.—O. P., a little colored boy, day after day, at school, would complain of headache, which, he said, had persisted since an attack of tonsillitis three weeks before. Nothing wrong could be found on several examinations. Finally, on May 23, a culture of the throat was taken which showed the presence of diphtheria bacilli.

CASE 10.—E. O. N., living in the house where her brother was sick with true clinical diphtheria, developed a mild sore throat which gave a positive culture. The child was not very ill and did not require antitoxin. There was no membrane in the throat.

CASE 11.—M. M., a girl of about 8 years, complained at school for several days of headache, nausea and sore throat. When examined on May 27, the throat contained diphtheria bacilli, which persisted until June 20. There was no pseudomembrane in the throat at any time.

CASE 12.—M. P., a girl, lived in an orphanage in which four cases of diphtheria had occurred in two weeks, despite the fact that as soon as discovered each patient was removed to the Municipal Hospital for Contagious Diseases, and the orphanage was disinfected. The medical inspector heard of seven children with tonsillitis having been isolated for several days in the infirmary and promptly took cultures of their throats on May 25. This child was one of four who gave positive cultures. Her throat was perfectly clear at the time.

CASE 13.—J. L., a boy isolated for tonsillitis at the same orphanage, when examined, had a clear throat, which nevertheless, contained diphtheria bacilli.

CASE 14.—R. S., a boy, also isolated for tonsillitis in the same way, gave a positive culture, although his throat was clear at the time.

CASE 15.—A. H., a boy, was the fourth of those isolated for tonsillitis who were suffering from latent diphtheria. His throat also was clear when examined.

CASE 16.—F. B., a boy of about 8, was told by his mother to consult the medical inspector at school to find out the cause of his having "kernels" in his neck. She said he was subject to them. On examination the tonsils were seen to be very large, but there was no sign of a deposit. The boy had not been ill at all. He was excluded for "tonsillitis," and a culture was taken on June 2 that proved positive. A culture four days later was negative. At the time of the first examination on May 2, and for two days following the child's 4-year-old brother, E. B., suffered from stiff neck. A culture of his throat was taken on June 7. Although no abnormal appearance was noted the culture was positive, and when the child (E. B.) was seen two days later he was sick that day (June 9), for the first time. A typical diphtheritic membrane covered the back part of the tonsils.

CASE 17.—H. H., a boy of about 10 years, complained June 3, while at school, of headache, belly ache, nausea, and vomiting. His throat was slightly inflamed. Otherwise the child was apparently well. A culture was taken, proved positive. Although the symptoms complained of had disappeared by the next day, the diphtheria bacilli persisted for more than a week.

CASE 18.—L. A., a girl of about 11 years of age, was sent from home the moment her brother was taken sick with undoubted clinical diphtheria, but she continued to attend school. Twelve days later her throat was examined and the tonsils were seen to be enlarged and reddened, but no patch was anywhere visible. The child complained of no subjective symptoms; her throat did not feel sore nor did she experience pain in deglutition. A culture taken on Sept. 19, 1904, contained diphtheria bacilli. On October 5 the tonsils were greatly enlarged and reddened and still gave a positive culture. The diphtheria bacilli did not disappear until October 11, on which day the tonsils were still reddened and were greatly enlarged, almost meeting in the median line. This was six days after the child sick with clinical diphtheria had given a negative culture.

CASE 19.—J. R., a girl of about 8 years, was absent from school for ten days with sore throat, but received no medical attention. She returned to school November 21, and remained in school until November 23. Her two sisters were stricken with true clinical diphtheria on November 22. The child at that time appeared perfectly well.

CASE 20.—E. G., a boy of about 11, on November 22, was in the same room with the sister of the patient in Case 19, who developed true clinical diphtheria that same day. The boy (E. G.), had always had hypertrophied tonsils and was subject to frequent attacks of tonsillitis, which was almost constant during the fall, winter and spring. He had been no worse during the past few weeks than previous to that time. His tonsils were enlarged, shiny and reddened on November 28, and contained diphtheria bacilli which persisted for five days.

CASE 21.—J. M., a girl, on December 13, was sent to the medical inspector in school on account of a swelling in the neck. The tonsils were reddened and enlarged and were prominent externally. There were no white spots and no other symptoms. The child had had pain in her ear, etc., a week previously. The throat gave a positive culture, but two days later the culture was negative.

CASE 22.—J. B., a boy, in school December 7, had a sore and reddened throat, which gave a positive culture. A week later a culture of his throat proved negative.

CASE 23.—F. S., was referred to the medical inspector at school on account of otorrhea. A routine experimental culture was taken which proved positive. When the child was seen a few days later on Jan. 9, 1905, there was no sign of diphtheria and the throat gave a negative culture.

CASE 24.—W. G. M., on January 20, complained in school of a headache and presented a mild pharyngitis. A culture taken from his throat contained diphtheria bacilli, which persisted until February 8.

Case 25.—M. S., a girl, had tonsillitis in school on February 8 and her throat gave a positive culture. Her physician said that he found no tonsillitis, but on February 10 the medical inspector, when taking a culture that proved negative, noted that a mild degree of tonsillitis was still present.

Case 26.—J. S., a girl, complained of headache in school on February 10. She felt ill but did not suffer pain on swallowing. There was slight reddening and swelling of the tonsils, but no white patches were visible. A culture showed the presence of diphtheria bacilli in the throat. A couple of weeks previously an aunt had had a white spot on her throat which received no treatment. On February 13, the girl still felt ill. Her throat was slightly inflamed and ulcers were present on the inside of her lower lip. Cultures from both the throat and the ulcers were negative.

Case 27.—L. C., a little girl, developed dysphagia on June 29, 1905, the tonsils being enlarged but not reddened. The temperature was 101° F., and remained elevated for two weeks. The pulse averaged about 116. On July 7, the tonsils were still swollen and the crypts were filled with secretion. The urine at that time contained a minute trace of albumin but no casts. Breathing became very noisy, but after an application of adrenalin solution was much easier. The child was put on a gargle of 1/500 formaldehyd solution, and silver nitrate, 60 grains to the ounce, was rubbed on the throat. The breath was foul. On July 10 the crypts were still filled with white secretion and a positive culture was obtained. The next day the tonsils were still swollen, but no membrane or secretion could be seen. The following day the throat was clear. The second negative successive culture was taken on July 16.

It is only fair to state that the bacteriologic laboratory that reported these cultures as showing the presence of diphtheria bacilli regards all bacteria morphologically indistinguishable from typical diphtheria as true Klebs-Loeffler organisms and take no account of the so-called pseudo-diphtheria bacillus or Hoffman bacillus. Consequently, a question as to the identity of the bacilli found may be raised by those who believe that the two organisms belong to different species. Such persons need regard as suffering from latent diphtheria only those patients who either were in contact with patients suffering from true membranous diphtheria or who themselves appeared to give rise to cases of membranous diphtheria. This will include Cases 6, 7, 8, 10, 12, 13, 14, 15, 16, 18, 19, 20 and 27. The other cases, 1, 2, 3, 4, 5, 9, 11, 17, 21, 22, 23, 24, 25 and 26, may be regarded as conditions of sore throat caused by diphtheria-like bacilli, although it is my opinion that the greater number, if not all, of these organisms were true diphtheria bacilli.

BACTERIOLOGISTS' EXPLANATION OF LATENCY IN DIPHTHERIA.

The great variations observed in the clinical manifestations of diphtheria are explained by Abbott, Wesbrook and other bacteriologists as due to variations in the virulence of the bacillus and in the susceptibility of the individual; not so much to the bacilli as to the soil on which they grow.

One of the principal factors in the mechanism of individual immunity was believed by Behring and Schanz and proved by the researches of Neisser, Orlowsky, Fischl and Wunscheim, and Wasserman to be the presence in the blood of sufficient antitoxin, a condition which is possibly congenital.

LATENT DIPHTHERIA AS SEEN BY OTHER OBSERVERS.

The majority of physicians, according to Chapin, are skeptical about the diagnosis when they see diphtheria without exudation and the patient not confined to bed. Mild atypical cases, however, are extremely common. Years before the discovery of the Klebs-Loeffler organism J. Solis-Cohen, Mackenzie, Jacobi and others called attention to the occurrence of diphtheria without local deposit. More recently Abbott, Chapin, Cobbett, S. Solis-Cohen and Eshner, Fussell, Koplik, McFarland and Babcock, Morse, Park, Rupp, Thorne, Westbrook, and hosts of others have confirmed these earlier observations. A graphic description of latent diphtheria and of its danger to the public health was written by Jacobi in 1884:

> The symptoms are often but few. A little muscular pain and difficult deglutition are, perhaps, all that is complained of. Women will quietly bear it; men will go about their business. . . . There is as much diphtheria out of bed as in bed; nearly as much out of doors as in doors. Many a mild case is walking the streets for weeks without caring or thinking that some of his victims have been wept over before he was quite well himself. . . . Diphtheria is contagious. Severe forms may beget severe or mild forms. Mild cases may beget mild or severe cases.

The picture, however, is not always the same. The clinical features presented by nineteen cases from which Biggs obtained virulent cultures were those of typical acute follicular tonsillitis or of simple acute pharyngitis. In Koplik's cases there was little or no constitutional disturbance. In some of the patients the fauces showed a general hyperemia with enlargement of the tonsils, which became still more prominent when the patient gagged, revealing the enlarged open lacunæ. In a number of instances the lacunæ contained fibrinous plugs in which virulent Klebs-Loeffler bacilli were found. A similar condition, but without visible hyperemia around the plug, is described by Charsley. Park describes a group of cases in which the mucous membrane is only slightly swollen and hyperemic. Cobbett found diphtheria bacilli in cases of slight sore throat. In the latent forms mentioned by Williams, which are unaccompanied by obvious illness, a nasal catarrh, increased pulse-frequency, an irritable heart, a redness of the fauces, or slight tonsillitis may severally be the only symptoms.

IMPORTANCE OF LATENT DIPHTHERIA FROM THE PUBLIC HEALTH STANDPOINT.

From the public health standpoint these mild cases of diphtheria are extremely important. Crowly, Lesieur, Thorne, Wesbrook, Wilson and McDaniel, McFarland and Babcock, Morse, Park and others have called attention to the fact that persons with very slight sore throat, due nevertheless to the Klebs-Loeffler bacillus, may infect others with a severe form of diphtheria. Indeed, Cobbett and Packard believe that from the hygienic standpoint the mild cases are more responsible for spreading the disease than are the notified cases, because no precautions are usually taken in regard to them.

LATENT CASES A STARTING POINT IN DIPHTHERIA EPIDEMICS.

The part played by these unrecognized cases in the production of diphtheria epidemics has been shown by many observers. Thorne, Power, Blaxall, Parson, Page, Jacobs, Fasbroke, each reporting from different English towns and parishes, have observed concurrently with and preceding and sometimes following the prevalence of unmistakable diphtheria the occurrence of a large amount of comparatively trifling sore throat, much of it never coming under medical observation, which serves as the connecting link between groups of diphtheritic attacks. During an epidemic of diphtheria at Pirbright, according to Power, cases of trivial sore throat or "colds" that were not perhaps heard of (ex-

cept by close questioning) often preceded and were seemingly responsible for later occurrences of true and fatal diphtheria in the family, especially where there were many young children. In such families, severe or fatal cases of diphtheria tended to occupy a position midway in a series of attacks that began and ended as sore throat.

Washbourn and Hapwood report the case of a child with mild coryza who was examined after diphtheria had broken out among his companions and was found to harbor virulent diphtheria bacilli. Williams mentions a case of indefinite sore throat that transmitted to two children a nasal infection containing true virulent diphtheria bacilli, but without other disturbance of health.

A house infection of diphtheria was traced by Neisser to a case of chronic sore throat with diphtheria bacilli. Swan describes two house epidemics of diphtheria, directly traceable to cases of ordinary sore throat in which bacteriologic examination showed the presence of diphtheria bacilli. After describing the occurrence of diphtheria in a household following the visit of a child who had mild sore throat for two months previously, Bissel states that there are many such fully authentic cases in Buffalo.

LATENT CASES RESPONSIBLE FOR DIPHTHERIA OUTBREAKS IN HOSPITALS.

Several outbreaks of diphtheria in hospitals have been attributed to latent cases. In a hospital for children at Frankfurt, Cuno found the source of an epidemic, which persisted in spite of the most vigorous disinfection, to be a nurse who suffered from a chronic sore throat. Andrewes found virulent diphtheria bacilli in six cases of simple sore throat with a few points of exudation occurring among the female members of the staff of St. Bartholomew's Hospital. In a ward in the Children's Hospital at Basle in which several cases of diphtheria had developed, Feer obtained diphtheria bacilli from the tonsils of two children who had sore throat, fever and enlargement of the cervical glands, but without false membrane.

THE OCCURRENCE OF LATENT DIPHTHERIA IN PUBLIC SCHOOLS.

Many cases of latent diphtheria have been found among school children. Of 586 children with sore throats examined, Goadby found diphtheria bacilli in 190 (3 per cent.). Chapin states that of 2,032 apparently benign sore throats found in children at school in Hartford, 591 (29 per cent.) gave positive cultures. Parkes examined 3,000 sore throats and found diphtheria bacilli in 343 (14.3 per cent.). Berry and Washbourn report the persistence for two months of a series of mild sore throats following the introduction of diphtheria into a girls' school. At intervals of one month a number of cases of true diphtheria would occur. Washbourn then examined all the scholars with any degree of sore throat and discovered diphtheria bacilli in 17. In a boarding school where there had been several cases of diphtheria, Peck examined five pupils with slight ailments and found that three were harboring diphtheria bacilli. Williams reports the occurrence of a case of true diphtheria contracted in a school from a boy convalescent from tonsillitis, who had an unduly frequent pulse and whose nose contained diphtheria bacilli. He also mentions another pupil in the same school who had a slight tonsillitis and was found to have the specific organisms in his throat.

THE CONTROL OF LATENT DIPHTHERIA BY THE HEALTH AUTHORITIES.

The cases cited from my personal experience and those reported by other observers prove that diphtheria may occur in a latent form which is just as contagious as are the more marked cases with membrane, and consequently more dangerous to the public health.

The duty of the sanitary authorities to protect the public from patients with diphtheria applies to mild as well as to severe cases. There are few arguments for municipal control of well-marked cases that do not apply with equal force to the latent forms. The danger to the community of a diphtheria patient does not depend on the severity of the infection, but on his liability to transmit the disease.

I believe, therefore, that the health authorities should insist on strict isolation of latent cases of diphtheria. The suggestion of Park that the attending physicians themselves determine whether cases without characteristic symptoms be treated as diphtheria or not does not seem to me practicable or fair owing to the great differences of opinion that exist among physicians as to the infectivity of such cases.

When a patient with typical membranous diphtheria is isolated at home, a placard announcing the presence of the disease should, of course, be posted at each entrance. In latent cases, however, this placard might be omitted, provided strict isolation is maintained to the satisfaction of the health authorities.

BACTERIOLOGIC TESTS REQUIRED FOR REMOVAL FROM ISOLATION.

If the isolation of either severe or mild cases of diphtheria is to be of practical value in preventing the spread of the disease, it must continue until the specific bacilli have permanently disappeared from the throat. The danger that an individual may be a focus of infection remains so long as he carries the germs about. The great variation in the persistence of these organisms makes the adoption of a time limit from the disappearance of the membrane, as practiced in Providence, ineffective in typical cases and impossible in latent forms. Although in most instances the bacilli disappear after from twenty-eight to thirty-six days, they have been known to persist for 82, 99, 154 and 167 days, for 10 months and even for several years.

The only method of discovering whether or not the organisms have disappeared from the throat is by taking cultures. One culture alone, however, as shown by Graham-Smith and Wells, has not been found a sufficiently reliable index as to their complete disappearance.

As a result of their experiences Cobbett and Graham-Smith advise a minimum of three successive negative cultures before release from isolation. The health authorities of Philadelphia, Boston and many other cities, however, require but two. This seems a good working rule. I recommend, therefore, that in all cases of diphtheria, whether severe or latent, isolation should be maintained until two successive negative cultures shall have been obtained from the patient's throat.

MEASURES INSURING THE RECOGNITION OF LATENT DIPHTHERIA.

The control of known latent cases of diphtheria by the sanitary authorities, however, will not of itself sufficiently protect the public health. Quite as important is the recognition of the latent forms. These, it has been shown, are usually mistaken for cases of tonsillitis and pharyngitis, from which they can be differentiated

only by means of cultural tests. Tonsillitis and pharyngitis should be included, therefore, among the diseases to be reported or "notified." When so reported, the physician should be requested to take a culture of the throat and should be offered the services of the health department in case he does not desire to take the culture himself. Biggs believes that observations made by him, by the New York Health Department laboratories, and by Koplik and others are sufficiently conclusive in showing that when diphtheria bacilli typical in appearance are found in cultures obtained from cases of simple angina (cases in which there is no membrane) animal tests in a large majority of instances prove that the bacilli are fully virulent. Park and Beebe, and Wesbrook, Wilson and McDaniel, also declare it justifiable in such cases to assume that the bacilli are virulent and hence dangerous. On the finding of diphtheria-like bacilli, therefore, in a case of tonsillitis or pharyngitis, that case should be regarded as one of latent diphtheria and managed accordingly, unless the bacilli be shown by inoculation into guinea-pigs not to be virulent. The municipal laboratory should, however, be prepared to make tests for virulence when so requested by the attending physician.

In schools that are visited by a medical inspector much latent diphtheria would be discovered and removed as a source of contagion by enforcing the following regulations: A child in school with sore throat should be sent to the medical inspector, who should take a culture from the throat and then exclude the child. If the culture is reported negative, the child may be readmitted as soon as the throat is clear. But if bacteriologic examination discloses the presence of diphtheria-like organisms, the case should be regarded as one of diphtheria, unless inoculation tests show the bacilli to be nonvirulent.

A child who has been absent from school on account of sore throat should not be permitted to return until a culture of the throat has been taken. When this has been neglected by the attending physician, it must be done by the medical inspector. If this first culture is negative, the child may at once resume attendance. If, however, it proves positive, the exclusion must be maintained until two successive negative cultures have been obtained. A similar regulation is now in force in London during diphtheria epidemics. The London County Council has recently adopted a recommendation from the education committee to the effect that, during the presence of diphtheria in any district, the committee should be authorized to refuse to admit to school children excluded on account of sore throat until they have obtained a medical certificate of freedom from infection based on bacteriologic examination. Such action, however, seems to me just as important between epidemics as during them, for the reports of Thorne and the medical officers quoted earlier in this paper show that antecedently and subsequently to outbreaks of diphtheria, sore throat is very common, serving as the connecting link between diphtheria epidemics.

TERMINAL DISINFECTION.

Not only must latent forms of diphtheria be discovered and be subjected to municipal control, but in order to check the dissemination of diphtheria all the known avenues of contagion must be cut off whenever the disease appears, whether in severe or latent form.

The most commonly employed prophylactic measure in addition to isolation is terminal disinfection. As Chapin, Gorham and others have shown, however, fomites are of relatively minor importance as carriers of infection, and the evidence for the necessity of surface disinfection after diphtheria is very slight. Still, inasmuch as the presence of diphtheria bacilli has been demonstrated by Hill, Gorham and others, in a small percentage of infected objects, I think it wise to disinfect, with their contents, all rooms that have been occupied by a patient suffering from either severe or latent diphtheria. It should nevertheless be realized that this alone will have little effect in preventing the spread of the disease, if no precautions are taken to prevent healthy persons with virulent bacilli on their mucous membranes from mingling with other people. Consequently, I believe that terminal disinfection should be postponed until all the members of the household have been shown by bacteriologic examination to be free from diphtheria bacilli.

THE CONTROL OF PERSONS RESIDING IN THE SAME HOUSE WITH A DIPHTHERIA PATIENT.

A difficult problem confronting the health authorities in their endeavors to limit the spread of the disease is the control of those who are in more or less intimate contact with the patient. The measures recommended by writers on hygiene and sanitation and those practiced by the boards of health in this connection seem, as a rule, to be based on the supposition that such persons carry the germs on their clothing and on the exposed skin surfaces. Thus, in some cities those living in an infected house are prevented from attending school or working at certain occupations, but they may resume their accustomed duties on residing elsewhere, provided they have taken a disinfectant bath and have had their clothing disinfected. Whoever comes in intimate contact with the patient is advised, while in the sick room, to wear a gown reaching from the neck to the floor and a cap covering the hair, and on leaving the room to disinfect the face and hands. In neither case is any attempt made to determine the presence or absence of diphtheria bacilli on the mucous membranes of those persons. Yet it is well known that healthy persons who have been in contact with diphtheria may carry the germs on their mucous membranes without becoming sick themselves, though they are capable of transmitting the disease to others. Such persons are known as "carrier" cases and infected "contacts." The germ-laden throats of the infected "contacts" constitute a far greater source of danger than do their garments. Persons residing in an infected house should be prohibited from attending school or from working at any employment in which they are brought in contact with other people or with articles of food, wearing apparel and the like, and from frequenting public places. But these restrictions should not be removed until bacteriologic examination has shown the absence of diphtheria bacilli on their mucous membranes. Yet whenever isolation is effectively maintained to the satisfaction of the health authorities I believe that the restrictions might be suspended in the case of those whose throats are shown by cultural tests to be free from the Klebs-Loeffler organism and remain free when examined at frequent stated intervals.

The method employed in Bristol, England, for finding out which of the inmates of an infected house are harboring diphtheria organisms is an excellent one. As soon as a case of diphtheria is reported or "notified" the physician in charge is requested to obtain cultures from the throats of all the inmates of the house and is offered the services of the health bureau for that purpose.

I recommend the adoption of such a rule.

The measures I have advocated are stricter than those usually suggested. Welch, Park and Beebe and the Philadelphia Bureau of Health, however, regard members of an infected house as a source of more or less danger and impose certain restrictions, but Cobbett, Graham-Smith and the Massachusetts Association of Boards of Health object to causing any hardship to breadwinners.

That municipal control of infected "contacts" residing in an infected house is not, as objectors urge, impracticable is proved by the fact of its effective operation in many cities. The Bureau of Health of Philadelphia, for instance, excludes from work all inmates of houses in which diphtheria exists who are employed in the manufacture or sale of clothing, house furnishings or foodstuffs, whether breadwinners or not, and does not permit them to return to work until after the house has been disinfected and the placard removed, unless they change their places of residence and submit to other specified regulations for safeguarding the public health.

In institutions, such as orphanages and insane asylums, strict rules can and must be enforced in order to prevent an epidemic. Whenever a case of diphtheria, even of a latent form, occurs in an institution, cultures should be taken of the throats of all inmates, officers and employés, and all those giving positive cultures should be isolated until two negative cultures have been obtained successively.

THE CONTROL OF INFECTED "CONTACTS" OR "CARRIER" CASES NOT RESIDING IN AN INFECTED HOUSE.

It is recognized by all that many perfectly healthy individuals with normal throats harbor diphtheria bacilli; a still larger number are said to harbor the so-called pseudo-diphtheria bacilli. Consequently the control of "carrier" cases in which the infected individuals do not reside in an infected house presents many practical difficulties. The opinions of sanitarians differ greatly not only as to the character of the municipal supervision required for such cases, but as to whether or not any control at all is desirable. This lack of unity is a consequence of the divergent views held by bacteriologists concerning the so-called pseudo-diphtheria bacilli.

The scientific world may be divided into two principal groups: first, the French school of bacteriologists and a few Americans, Englishmen and Germans[1] insist that all these organisms are true Klebs-Loeffler bacilli. They discard the term pseudo-diphtheria bacilli, believing that the organisms so-called are merely varieties of, or attenuated, or modified, diphtheria bacilli. Second, practically the whole German school, on the other hand, and the great majority of American and English bacteriologists[2] consider the Hoffman or pseudo-diphtheria bacillus a completely different and distinct organism from the Klebs-Loeffler or true diphtheria bacillus. A number of this second group (Abbott, Bergey, De Martini, Gromakowski, Hamilton, Hewlett and Knight, Kurth, Lesieur, Park and Beebe, Veillon and Halle, and A. W. Williams) use the term "pseudo-diphtheria bacilli" to include a group of bacilli resembling, but distinct from, the Klebs-Loeffler organism, of which the Hoffman bacillus is merely one member.

Those believing in the existence of two distinct organisms see many points of difference between the Klebs-Loeffler bacillus and the so-called Hoffman bacillus. The bacteriologists, however, who insist on identity argue that the properties of the different forms of the diphtheria organism are unstable and varying, one form readily assuming the characteristics of another form. Among the points of difference given may be mentioned the morphologic appearance of the organisms, their appearance with Neisser's and with Gram's methods of staining, the appearance of their growth in bouillon and on solid media, their production of acid in glucose and in broth cultures, and their virulence when inoculated into guinea-pigs. Other tests are the agglutination test, fermentation tests in the serum-water media of Hiss, animal inoculations controlled by antitoxin, vaccination against diphtheria with the aid of pseudo-diphtheria bacilli, the power to hemolyze the rabbit's corpuscles, the bactericidal action of diphtheria antitoxin on diphtheria bacilli, and the application of specific sera to neutralize specific toxins. Some investigators claim that they have been able to increase and to decrease the virulence of diphtheria bacilli, to convert diphtheria bacilli into pseudo-diphtheria bacilli and *vice versa*, and have noted the production of active toxins by the pseudo-diphtheria bacillus, and have established the identity of the toxins from the organisms. A difference of opinion, nevertheless, exists among laboratory workers concerning every method of differentiation suggested in which the attempt has been made to verify the findings of the original observer.

While in view of such a conflict of authorities the sanitarian will admit that academically the identity or separateness of the diphtheria and pseudo-diphtheria bacilli is an open question, in practice he must err, if at all, on the safe side. The measures he enforces must be such that the public health will be protected no matter which bacteriologic view is correct. At the same time he must be careful to avoid all restrictive regulations not justified by the facts or required by the necessities.

Many authorities, including the Massachusetts Association of Boards of Health, Parke and others, object to exercising any control at all over infected "contacts" or "carriers" not residing in an infected house. They believe that healthy persons with diphtheria bacilli in their throats are not a source of danger to the community. Moreover, owing to the ubiquitousness of the diphtheria bacilli, they regard the bacteriologic examination of "contacts" and the isolation of those found infected as unjustifiable, impracticable and unfair. Variot declares that if the medical inspectors of the city of Paris separated from their companions all the children who have in the pharynx the different forms of pseudo Loeffler and Klebs-Loeffler bacilli they would risk depopulating the schools without sufficient reason. Consequently only general sanitary measures are advised.

According to this view, persons harboring diphtheria bacilli should be warned that they are a source of danger to others, instructed to take certain precautions, induced to use antiseptic mouth-washes and gargles, and kept under observation.

1. Behring, Bissell, Browne, Combe, Concetti, Denny, Fraenkel (in 1893), Fingge, Gorham, Hellstrom, Koplic, L. Martin, S. and L. Martin, Mongaur, Morse, Ohlmacher, Pes, Revilloid, Ritter, Roux and Yersin, Schanz, Spirig and Wesbrook.

2. Abbott, Auché and Brindel, Babes, Baginski, Beck, Bergey, Boycott, Cobbett, De Martini, Denny, De Simoni, Dräer, Escherich, Feer, Flugge, Fraenkel (in 1890), Franke, Garratt and Washbourn, Gelpke, Gladin, Glücksmann, Graham-Smith, Grancher, Gromakowski Hamilton, Hamilton and Horton, Haushalter, Hewlett and Knight, Hewlett and Murray, Hilbert, Hoffman, Jacob, Knapp, Kruse, Kurth, Lesieur, Loeffler, Massei, Migula, Neisser, Park and Beebe, Paltauf and Kolisko, Peters, Petrie, Preisich, Prochaska, Pugh, Richardiere and Tollemer, Salmon, Schwoner, Shahad, Spronck, Ustvedt, Veillon and Halle, Welch, Williams (A. W.), Williams (P. W.), Zarnko and Zupnick.

Other sanitarians such as Abbott, Caiger, Cobbett, Dunham, McFarland and Babcock, Wesbrook and his associates, and others, on the contrary, regard a well individual with diphtheria germs in his throat as such a grave menace to the health of those with whom he comes in contact that they recommend his isolation. They believe that while such action unquestionably causes inconvenience to the individual, it is necessary for the general good.

I believe that the health authorities may properly disregard the presence of diphtheria-like bacilli in the throats of healthy persons who have not been in direct or indirect contact with a case of diphtheria, membranous or latent, and who have not themselves suffered recently from sore throat. It has been demonstrated by many investigators[3] that virulent bacilli are seldom if ever present in the throats of healthy persons who have not been in contact with cases of diphtheria or with infected "contacts." The diphtheria-like bacilli found in healthy persons who have not been subjected to such contact are practically always non-virulent and such persons consequently are not a source of danger. Denny, Graham-Smith, Kober, and Park and Beebe examined a total of 1,511 persons with normal throats in whom there has been no possibility or probability of recent infection. Non-virulent diphtheria-like bacilli were found in 30 (1.98 per cent.), but in only 2 were virulent bacilli found. In 1 diphtheria bacilli were found which were not tested for virulence (a possible 0.19 per cent.). Biggs, Garratt and Washbourn, Hewlett and Murray, and the Massachusetts Association of Boards of Health examined altogether 3,374 healthy persons, but without making any inquiry as to the possibility of contact. Non-virulent diphtheria-like bacilli were found in 134 (3.9 per cent.), virulent diphtheria bacilli in but 9 (0.2 per cent.). Bacteriologists of both schools are thus in accord concerning a point of such great importance to the sanitarian. Gorham, Kober, the Massachusetts Association of Boards of Health, Pugh, and Wesbrook, who regard all diphtheria-like bacilli as Klebs-Loeffler organisms, and Biggs, Cobbett, Graham-Smith, Park and Beebe and P. W. Williams, who believe in the existence of a distinct Hoffman or pseudo-diphtheria bacillus, are all of the opinion that only a small percentage of the diphtheria bacilli found in well persons not recently exposed are virulent.

They believe, on the other hand, that when virulent diphtheria bacilli are present in the throats of healthy persons they have been derived as a rule either directly from cases of diphtheria or from individuals who have been in contact with such cases.

Conversely, it has been observed by Graham-Smith, Pugh and Williams that the diphtheria bacilli found in persons who had recently been in contact with the disease are usually virulent. It is my opinion, moreover, that in many instances where diphtheria bacilli are found in healthy throats the subjects are in reality convalescent from latent diphtheria. In a large number of my cases of latent diphtheria, for example, all signs of sore throat or other symptoms disappeared in one or two days, the patients then presenting the appearance of perfect health. Therefore, in regarding a person harboring diphtheria bacilli as healthy or normal, the possibility that such a one may be convalescing from a recent attack of latent diphtheria must be borne in mind.

When, therefore healthy persons who have been exposed to diphtheria, although not residing in an infected house, are found to have diphtheria-like organisms in their throats they should be subjected to the same restrictions that govern infected "contacts" residing in the same house with a diphtheria patient. They should be excluded from work or school and prevented from mingling with other people until free from the bacilli, as determined by two successive negative examinations. Such restrictions, however, should not be enforced in any case in which the organisms have been proven by inoculation tests to be non-virulent, although it is questionable whether or not the state or municipality should be put to the trouble or expense of making inoculation tests in the case of infected "contacts."

DETECTION AND ISOLATION OF INFECTED "CONTACTS" IN SCHOOL.

It will be impossible to detect all "carrier" cases in a community without making bacteriologic tests of everyone—an impracticable procedure in large cities. There are certain classes of intimate "contacts," however, who can be examined for the presence of diphtheria organisms.

Most writers[4] are agreed that in a school cultures should be taken of all "contacts," and those found to be infected should be excluded and isolated. By such means Cobbett stamped out epidemics in Cambridge and Colchester, Wesbrook and his assistants were able to check the spread of the disease in Minnesota, and O'Hara, an assistant medical inspector, practically rid two Philadelphia public schools of diphtheria which for months had been unduly prevalent there. When, therefore, diphtheria develops in a child who is attending school or who has been recently in attendance, cultures should be taken from the throats of all the pupils and of the teacher in that child's classroom. All persons who are found to harbor diphtheria bacilli must be excluded from school and treated as infected "contacts" until they are shown by bacteriologic tests to be free of the germs.

DETECTION OF INFECTED "CONTACTS" IN INDUSTRIAL ESTABLISHMENTS.

I believe that many "carrier" cases become infected by fellow-workers in the shop or mill. I strongly recommend, therefore, that when a case of diphtheria develops in an industrial establishment all those who were in more or less contact with the patient, certainly all who were in immediate contact, be examined bacteriologically. This method of procedure will not only cut off further avenues of contagion when followed by the exclusion and isolation of those found infected, but may often discover the source of the original clinical case.

CONCLUSIONS.

1. The prevalence of diphtheria is due to the lack of control over latent cases of diphtheria and over the so-called "carrier" cases.

2. Diphtheria may occur in a latent form without pseudomembrane and with only slight symptoms.

3. Latent cases of diphtheria should be isolated until two successive negative cultures have been obtained.

4. All cases of sore throat should be reported to the health authorities and should be examined bacteriologically.

5. Infected "contacts" should be excluded from school or work and should not be permitted to frequent public places until two successive cultures have proved negative.

3. Biggs, Cobbett, Gorham, Graham-Smith, Kober, Park and Beebe, Pugh, Welch and Abbott and others.

4. Caiger, Cobbett, Davies, Massachusetts Association of Boards of Health, Swan, Williams, and many others.

6. All who have been in contact with a diphtheria patient, whether at home, at school, or at work, should be examined bacteriologically.

7. Disinfection of fomites and terminal disinfection of rooms and their contents is insufficient and reliance thereon treacherous. Animate carriers of infection are more dangerous than the inanimate.

AN EPIDEMIC OF ACUTE PELLAGRA.*

GEORGE H. SEARCY, M.D.
TUSCALOOSA, ALA.

Last summer at the Mount Vernon Insane Hospital, the hospital for colored insane in Alabama, there appeared a few cases of a disease which had been noticed every summer since the patients had been moved there from Tuscaloosa in 1901. Some three or four cases of this disease would occur during each summer and they usually proved fatal. The true nature of the disease was not recognized, and in most instances it was supposed to be a condition of general debility.

Early last fall these cases became very numerous, and it was recognized that the disease was epidemic. At the request of the superintendent I went to Mount Vernon to assist the physicians there in studying and controlling the disease. With the assistance of Drs. McCafferty and Somerville, of Mount Vernon, and of Dr. Dyer, of New Orleans, I believe I have worked out the true nature of the disease, and have the following to report:

There occurred at the Mount Vernon Hospital during the late summer and early fall of 1906 eighty-eight cases of acute pellagra, with fifty-seven deaths—a mortality of about 64 per cent.

DESCRIPTION AND ETIOLOGY.

Pellagra is an endemic, systemic disease, usually characterized by cutaneous lesions of an erythematosquamous and pigmentary character in one or more definite locations and is associated with disturbance of the digestive tract and nervous system. It should be classed with diseases resulting from food poisoning, and in the subclass—grain poisoning along with ergotism and lathyrism. It is described in most of the American text-books on skin diseases as a chronic disease of several years duration, but in studying reports from southern Europe, where it is most prevalent, I find it may run an acute course, as at Mount Vernon, or an extremely slow one, and may exhibit few or many symptoms.

The disease occurs among the poorer classes and in institutions where the diet is at times limited. It develops most frequently among adults and in females more frequently than in males. It occasionally is met with in nearly all European countries, especially those bordering on the Mediterranean. There are endemic centers in parts of Italy, Spain, Greece and Egypt. Some cases have been reported from India, Turkey and South Africa. One authentic case has been reported from England. In the Americas pellagra has been recognized in Mexico, Brazil and the Argentine Republic. No cases have been reported as originating in the United States. Sherwell met with a case in a sailor on a vessel in New York.

As to its etiology, its relation to the continuous eating of damaged corn has long been recognized, and poverty, poor hygienic surroundings and exposure to the sun's rays have been given as predisposing factors. A number of writers ascribe the disease to certain toxic substances developed in the course of the decomposition of the grain under the influence of vegetable organisms; others attribute it to the organisms themselves. Consequently the various fungi and bacteria found on corn have all been incriminated in turn as the causative agents of pellagra.

Lombroso claims it is an intoxication due to an extractive substance similar to ergotin formed by the growth of certain fungi on corn. He has obtained watery and alcoholic extracts of damaged corn and has produced experimentally symptoms similar to those of pellagra. He calls this extractive substance pellagrazein. He calls this extractive substance pellagrazein.

A sample of the meal used at the Mount Vernon Hospital, which was supposed to be the best western meal, was sent to the pathologist in charge of the laboratory of plant pathology at Washington, and he reported the meal wholly unfit for human use; that it was made of moldy grain and contained quantities of bacteria and fungi of various sorts, some of which were identified.

In addition to the eating of damaged corn, the sun has been supposed to have much to do with the cause of pellagra, as the cutaneous lesions appear in those places exposed to the sun's rays, as back of hands, back of feet, face and neck. It is now generally accepted, however, that the chemical rays simply have more or less influence on the severity of the skin lesions and do not cause them. Gerardini, and later Hameau, obtained differently-shaped patches of erythema in cases of pellagra by means of gloves fenestrated in various ways.

One case in the epidemic at Mount Vernon, in which the patient wore a band around his wrist, showed a severe erythema above and below the band, but beneath it the skin was but slightly affected. In some cases there is no doubt that the sun makes the skin lesions more severe, but severe skin lesions do occur in those who wear shoes and are exposed to the sun but little.

Neusser pointed out that the erythema affects only the hands and feet of gypsy children in Roumania, although they go about perfectly naked, and it is also known that the disease abates in the fall as cooler weather comes on.

It is generally accepted now, however, that pellagra is caused by eating a substance formed by the growth of certain organisms in corn. This substance attacks the central nervous system, affecting trophic centers, and the chemical rays of the sun influence, more or less, the severity of the lesions in those regions whose trophic centers are affected and which are exposed to the sun.

SYMPTOMS OF ACUTE PELLAGRA.

The disease appears mostly in the summer months and first manifests itself by lassitude, weakness and a general run-down condition. The digestive tract becomes disarranged, giving rise to more or less gastric and intestinal disturbances with toxemia. The characteristic signs all appear about the same time. These are the skin lesions and those symptoms arising from the alimentary tract. The mouth becomes somewhat sore and red and there is a profuse flow of saliva accompanied by digestive disturbances, more or less diarrhea and considerable toxemia.

About the same time there appears a congestion or erythema in one or more well-defined locations, as the back of the hands and lower forearms, dorsal surface of the feet, back of the neck and on the face about the cheek bones. The skin in these regions becomes red and congested, with no pain and but slight itching or burn-

* Read before the Alabama State Medical Association, Mobile, April 18, 1907.

ing sensations. In a few days either vesicles and bullæ form, under which the surface is raw, weeping and not infrequently fissured, or the epidermis dries and desquamates, leaving a slightly-pigmented surface, or in some cases the skin becomes dry, thick and more heavily pigmented. In those cases where vesicles and bullæ form these break and the epidermis peels off, leaving a raw surface, which, if the patient survives, gradually heals over, leaving a thin, silk-like and slightly darker skin.

When the salivation and the dermatitis appear the patient usually takes to bed from general weakness, complaining but little of any pain or discomfort, and showing more or less dulness and depression, and as the disease progresses this dull condition becomes more marked. The temperature rarely goes more than a degree and a half above normal, and the pulse follows the temperature curve very closely. The fatal cases may prove rapidly so, in a week or ten days from the time they take to bed, or they may run on several weeks, the pulse gradually getting weaker and a little more rapid and the patient finally dying from general weakness.

When recovery follows, convalescence is very slow, the patient remaining weak and more or less dull a month or more, and even for several months remains below normal.

DIAGNOSIS.

The disease is to be differentiated from scurvy, acrodynia, purpura, erythema multiforme and allied conditions by the characteristic signs. These are the parts affected: back of hands, lower forearms, face and dorsal surface of feet; the character of the skin lesion, a dermatitis followed by vesiculation or desquamation with some pigmentation; the disturbances of the alimentary tract, salivation and more or less diarrhea; the depression; the toxemia and the absence of any pain and of any swelling or hemorrhage of the gums. If to these is added the fact that the patient has lived largely on corn products the diagnosis becomes more certain.

PATHOLOGY.

The pathologic findings, as far as worked out, are pachymeningitis, some sclerosis of the brain and cord, fatty degeneration of the internal organs and those changes in the skin which follow varying degrees of erythema.

PROGNOSIS AND TREATMENT.

The prognosis in acute cases, as in the Mount Vernon epidemic, is always unfavorable, death ensuing in most cases in from two to three weeks; others run longer. Recovery in any case is very slow, the patient remaining for months feeble and more or less depressed.

As for the treatment, there are no specific remedies. The essential management consists in placing the patient in good hygienic surroundings and trying to improve the general health by good nourishing food and such tonics as may seem indicated. Arsenic, iron and pepsin preparations were the remedies on which most support was placed and which sometimes seemed to influence the disease favorably.

GENERAL CONSIDERATIONS.

Some interesting points about the Mount Vernon epidemic were as follows:

1. Of the eighty-eight cases only eight were males.
2. The average age was thirty-four.
3. Two-thirds of them had been in the hospital longer than one year. Eighty per cent. had had fair or good health previously.
4. Of the skin lesions: (a) Eighty-five per cent. showed it on the back of the hands and wrists. (b) Thirty-five per cent. had it on the dorsal surface of the feet and the same per cent. on the back of the neck. (c) Twenty per cent. had it on the face, i. e., about the cheeks. (d) Only 8 per cent., however, had the skin lesions on all of these locations, and 12 per cent. had no skin lesions at all; just the salivation, gastrointestinal disturbance and nervous symptoms.

No nurses had the disease. They handled the patients, slept in the halls near them, and the chief difference in their way of living was in the diet. They ate little corn bread, mostly flour bread, biscuits, etc., and had a little more variety of diet.

As soon as the nature of the disease was determined and the true cause suspected the patients were taken off corn bread and grits and wheat bread and potatoes substituted. The rest of their diet was continued as before. No new cases, except the one in the test case, appeared after about ten days. A set of eight patients was kept on the former diet with corn bread and grits as a test. One of these developed the disease, another began to show symptoms, and all became in such poor general health that their diet was changed also.

Since attention has been called to this disease some four or five cases have been recognized in the Hospital for the Insane at Tuscaloosa. I believe that when it becomes generally known that pellagra may occur in this country we will have more cases reported, especially in the south, where corn bread and grits are so largely used.

Reports from Italy show that the disease often occurs in jails, poorhouses, asylums, etc., where corn products are used so largely as diet, and also among the peasants who use a great deal of corn; and it is shown that in southern Italy, where the grain ripens earlier and better, there is not so much pellagra as in the provinces north of Rome.

I have been informed that much of the western corn crop of 1905 was badly damaged by wet weather at harvesting time, and since it is known that pellagra may occur in this country it behooves the government to see, under the pure food laws, that no damaged corn is used for food purposes.

I will say that the grits sent to Washington for examination came up to the standard, and during the winter this food has been added again to the diet at Mount Vernon. No new cases have developed since last summer; some of the old cases are still hanging on, and it remains to be seen whether any new cases will develop or the old ones relapse this coming summer.

Is It Possible to Improve Antitetanus Serum?—The French clinicians have recently been discussing why antitetanus serum gives better results in veterinary practice than in the clinic, as seems to be the case. Delbet suggested that possibly this was due to the fact that it was horse serum that was used on horses, and the question then arose whether it might not be possible to find some serum better adapted for man than horse serum. The *Société de Chirurgie* has presented an official communication on the subject to the Paris Pasteur Institute, asking that this matter be taken up. The experience at the Paris hospitals has been decidedly in favor of preventive injections, as only 11 cases of tetanus have occurred in certain hospitals during the last seven years, and all of these have been in persons who by some mischance were not given the customary preventive dose of antitetanus serum, which is the routine practice there after a strect accident.

Clinical Notes

HEMARTHROSIS OF THE RIGHT KNEE IN A HEMOPHILIAC.

CHARLES SUMNER NEER, M.D.

House Surgeon Frisco Hospital, Assistant in Bacteriology in Medical Department of St. Louis University.

SPRINGFIELD, MO.

Although the subject of hemophilic joints has received considerable attention of late, many of the surgical text-books do not give it adequate mention, and some of them fail to speak of it at all. The comparative rarity of the condition, and the importance of its diagnosis, especially of its differentiation from tuberculosis, failure of which has often led to operation with fatal results, seem to justify the reporting of the following case which occurred recently in my service as interne in the St. Louis City Hospital:

Patient.—H. C., male, aged 28, nativity American, entered the hospital on account of a swelling of the right knee.

History.—At the time of entrance, temperature was normal and he could walk on the affected limb with little inconvenience. He stated that he drank 15 or 16 glasses of whisky daily and had been a bartender for a year and half. Before that he was an electric lineman. He used considerable tobacco and was somewhat excessive sexually. His father was living and healthy at 58. Mother died of some lung affection. Three brothers and three sisters were all living. All of these were healthy with the exception of one brother who was a bleeder. One paternal uncle died of some obscure abdominal trouble. No history of hemophilia in his grandparents could be obtained. When a boy patient was subject to attacks of "rheumatism" sometimes articular and sometimes muscular. He had measles and mumps and had had malaria several times. He denied syphilis but had had gonorrhea several times. In 1889 he had what he called dysentery. He passed blood from the bowels but the passages did not produce pain. He was for two months in a hospital in Dakota for this trouble, bleeding at intervals during the time. The patient stated that when about 12 years old, he received a small wound over the right eye which bled more or less, for two weeks in spite of all efforts to stop it. Ever since he had noticed that a slight cut bled persistently. In 1904 he was in the City Hospital with a scalp wound and the bleeding was stopped with difficulty. A little later he cut his right finger and thumb with a pane of glass and was obliged to enter a hospital where the bleeding continued several days before it could be stopped. About a year ago his right eye was enucleated on account of an injury to it. There was no marked bleeding from this operation. In July, 1906, patient fell and bruised the right knee. It soon became swollen and somewhat painful but he did not go to bed on account of it and within about two weeks the swelling had largely disappeared.

There was no history of hemoptysis or of hematemesis but he had had persistent epistaxis several times, which on one occasion, necessitated the application of a plug by means of a catheter passed through the nose and out the mouth.

Present Trouble.—On October 13, 1906 at about 9 p. m. patient accidentally struck his right knee against a box. There was but little pain at the time and he slept well that night. The next morning the knee was stiff, and after walking with it for a short time, he noticed that it was swollen. The swelling had persisted ever since and there had been some pain though not severe.

Examination.—He was a fairly well developed though rather poorly nourished man. His skin was clear excepting a few scabs on the hand and a few small furuncles about the right knee. No edema. The right knee joint was enlarged and evidently full of fluid, the swelling being fluctuant and corresponding to the extent of the synovial membrane. On the right side of the external condyle of the femur was a small ecchymosis marking the point of injury. The knee was but slightly tender to pressure. It was somewhat warmer than the left one. Abdomen was soft and insensitive; spleen not palpable and liver dulness not increased. Apex beat was palpable in the fifth interspace internal to the mammillary line. There were no heart murmurs. Pulse was regular and of moderate strength and frequency. The coagulation time of the blood was about 7 minutes. The urine was clear with a specific gravity of 1.028 and contained no albumin, sugar nor casts. His temperature at no time went above 101 F. and was usually below 99 F. Patient complained of but little pain and the functional disturbance of the joint was slight.

Diagnosis.—Hemarthrosis was the diagnosis made, based on, (1) a clear and well substantiated history of hemophilia, one brother also being a hemophiliac; (2) The occurrence of a well-marked swelling of the knee joint following a slight trauma, with scarcely any tenderness, and but little pain, fever, and functional disability.

Treatment.—This consisted of putting the patient to bed with the limb at rest, bandaging the swollen joint snugly with elastic cotton, and the administration of small doses of potassium iodid and an occasional purgative. The man made a good recovery. The swelling disappeared completely and he left about the middle of November, having been in the hospital less than 4 weeks.

Subsequent History.—Jan. 13, 1907 he returned to the hospital with symptoms which at first were attributed to gastritis. The symptoms increased in severity. He vomited considerably, was constipated and intestinal obstruction was suspected. January 16, the pulse became extremely weak and frequent and the vomitus had a fecal odor. There was no pain and but little distension of the abdomen. The patient was evidently in a dying condition and an operation was advised as offering the only chance. His relatives who knew very well his tendency to bleed finally consented.

Operation.—This was performed by Dr. P. D. McMillan. On opening the abdomen the peritoneal cavity was found to contain a considerable amount of bloody fluid. Almost the entire intestines were of a dark red color like that of beginning gangrene. The mesenteric vessels were engorged. No explanation of the cause of the condition was found in the belly.

The man died within 3 hours after the operation. An autopsy was not obtained, and in its absence we have not felt quite sure as to what the condition was which caused his death. The appearance of the bowel and mesentery at the operation suggested the possibility of a sudden portal obstruction. However in view of the man's previous history, the presence of blood in the abdominal cavity as well as some of the symptoms he presented during the last day or two of his life, it seems probable that hemorrhage was an important factor in producing his death.

ABSCESS OF THE LIVER,

RUPTURING INTO THE LESSER CAVITY OF THE PERITONEUM AND GIVING RISE TO PECULIAR SYMPTOMS. OPERATION. RECOVERY.*

F. W. DUDLEY, M.D.

Attending Surgeon, St. Paul's Hospital.

MANILA, P. I.

Patient.—The patient, a robust male, was admitted to Dr. Musgrave's medical service, in St. Paul's Hospital, February 26, 1907, complaining of severe pain in the abdomen. On March 1, he was transferred to Dr. McDill's service, and during his absence came under my care

History.—He was a native of the United States, of Irish-German descent, and by occupation was a machinist and engineer. He had resided in the Philippine Islands since 1900 and had previously lived in Guatemala for six years. He was a man of large muscular build, and of great vitality. He had a chancroid in 1902, and two attacks of gonorrhea, the last in 1903-1904. In December, 1906, he had a severe attack of estivo-autumnal malarial fever. He never had dysentery to his knowledge.

Present Illness.— For seven days previous to entering the

* Reported from Dr. McDill's surgical clinic, by his permission.

hospital he had been suffering from a pain in the abdomen not localized and not extending to the shoulders nor to the legs. He had not noticed any fever. Urination had been the same as usual. His bowels were habitually constipated, but at this time somewhat more so than usual. They had not moved for six days previous to his entering the hospital, although two large doses of magnesium sulphate had been taken. The pain in the abdomen had grown gradually worse and the patient had been unable to take any food for four days previous to admission.

Physical Examination and Symptoms.—There was great pain in the abdomen resembling "girdle" pains, but no localized tenderness. The abdomen was tympanitic but dulness was found over the right pleural cavity, in the midaxillary line, extending into the axilla. Liver and spleen apparently were normal in size. The pulse was full, strong and regular, temperature 98.2 F. (36.8 C.) and obstinate obstipation. The patient was able to get two or three hours rest after the administration of 0.032 gm. (½ gr.) of morphin. Vomiting began. The patient had taken no food after admission. After repeated attempts with purgatives and enemata, the patient had three moderately large, liquid, foul smelling stools on the evening of March 1, and felt completely relieved for ten hours thereafter. Pain then returned, and rapidly grew worse, to such an extent that large doses of morphin hypodermically, gave but little relief. Vomiting again set in, the bowels rapidly distended with gas and tenderness to pressure, which had not been a marked feature, now became exquisite and diffuse. A reflex pain appeared in the right chest beneath the center of the clavicle, and then shifted to the left shoulder. This characteristic pain was the first symptom pointing to possible liver abscess. Obstructive symptoms returned and no further movement could be obtained from the bowels, although everything was tried. At this time the patient became much worse as to general condition, showing great prostration, cold perspiration and weak compressible pulse. The pain became more intense, and the patient was not comfortable in any position. He received but little and only temporary relief from morphin, and had slept but a few hours since his admission to the hospital. Examination of the feces was negative for amebæ. They were bile stained. Blood examination was negative for malarial parasites. On March 1, there were numerous red blood cells in the urine, many leucocytes, and a trace of albumin. On March 3, examination was negative for blood cells. There was a rising leucocyte count: March 1, 17,400; March 3, 22,400.

Operation.—A median incision was made and free, in all parts of the abdominal cavity, there was found a large quantity of a reddish chocolate-colored pus. The appendix, an unusually long one, was removed, though not diseased. The transverse colon was greatly distended, and a constricting band was released an the splenic flexture. On searching, an aperture was discovered in the lesser omentum, through which flowed pus of the same character as that found in the abdominal cavity. A liver abscess, situated on the under surface of the left lobe, had ruptured retroperitoneally and then into the bursa omentalis, thence, through the lesser omentum, into the greater sack. Projecting into the bursa omentalis from behind, was an organized mass, horse-shoe in shape, encircling the spinal column and pressing on the splanchnic nerves, aorta, inferior vena cava and other structures in the vicinity. An opening led from this mass into the bursa omentalis, and it is thought communication extended from the upper and left portion of the mass to the left lobe of the liver. The abdominal cavity was well flushed out with saline solution, a large rubber drainage tube, filled with gauze and wrapped in gauze and rubber tissue, was inserted into the cavity, and another in a stab-wound above the pubes, the latter tube being carried well into the pelvis. The wound was closed by through-and through silkworm-gut sutures, tension, owing to edema, gas, etc., being very great and approximation difficult.

Postoperative History.—The patient was in the exaggerated "Fowler position" and so maintained for seventy-two hours. A free discharge ensued from the drains, which were removed, the lower on March 25, and the upper the day following. On March 25, amebæ were found in the discharge from the wound, thus proving this to be a case of amebic abscess of the liver, a disease not common in the Philippine Islands. The operation afforded complete relief from pain. On March 27, amebæ were found in the stools, and treatment ordered. Recovery was uneventful.

The salient features of this case were:

1. The agonizing pain, complete relief from which was not obtained from large amounts of morphin. I have never seen a patient suffer so intensely, and yet the temperament of the man was phlegmatic. He was in the hospital previously with malarial fever, and his conduct during that illness, as well as during the present trouble after the operation, was exemplary. He never complained, even on the removal of the drainage materials.

2. The peculiar fan-shape of the painful area, which radiated from a point between the second and third lumbar vertebræ, gradually widening as it encompassed the body, until at the umbilicus the painful area was about 13 cm. (5 in.) wide, extending equidistant above and below that point. The pain seemed to extend clear through that portion of the body embraced by two planes in contact at the intervertebral disk between the second and third lumbar vertebræ and extending forward and downward, gradually separating from each other.

3. The disease ran practically an afebrile course, from the time of admission until discharge, the greatest and practically the only variation being on the mornings of the first and second days after the operation, the evenings of the third and fourth days, which were, respectively, 36.3, 36.1, 37.5 and 37.5 C. (97.3, 97., 99.5 and 99.5 F.).

4. The peculiar course taken by the pus in making its exit from the liver.

SMALLPOX AND VACCINIA.

THEODORE C. MERRILL, M.D.
COLORADO, TEXAS.

In an experience with smallpox limited to the town of Colorado and occurring between the dates of April 7 and May 20, 1907, the following conditions were encountered. They are interesting as confirming previous observations as to the coincidence of variola and vaccinia.

There were in all six cases of smallpox, five of which presented the coincidence above referred to. The sixth case was mild smallpox unmodified by vaccination and irrelevant to this report.

The patient in the first case was isolated as soon as the disease was determined and some eleven people who had been exposed were segregated in a detention camp and vaccinated. After three or four days in every instance the typical sore developed. Within twelve days after exposure to smallpox, and with a well-defined vaccination sore, five of the segregated persons presented the papular rash of smallpox, which rapidly proceeded to the vesicular and pustular stages.

These cases of varioloid were without severe constitutional symptoms and every patient recovered satisfactorily, with one exception, in whom the factors of age and constitutional depression caused a protracted convalescence.

Prophylaxis.—With all our knowledge there will always be enough of sickness in the world and enough suffering, without the preventable physical weakness and ills.—J. F. Rogers, M.D., in *Dietetic and Hygienic Gaz.*

EPITHELIOMA OF THE CLITORIS.

F. H. NEUHAUS, M.D.
HOUSTON, TEXAS.

In view of the rarity of malignant neoplasms of the external female genital organs I wish to report the following case:

Patient.—A widow, aged 52, mother of two healthy children, gave the following family history: Her mother died at the age of 32, of yellow fever, her father at the age of 40, of acquired tuberculosis; her two sisters died in infancy of some bowel trouble. She passed the menopause three years ago. There is no history of malignancy among the immediate relatives.

History of Present Illness.—The patient was first seen in the latter part of January, when she complained of a pruritus vulvæ which had existed about two years. It had been very annoying for the past six months, and had resisted several different methods of treatment. Examination was then refused. The urine showed no sugar nor evidence of any kidney disease, was alkaline and contained an excess of phosphates. The patient was very nervous and not well nourished.

Treatment and Result.—Boric acid with sodium bromid and tincture of belladonna was given internally; a hot vaginal douche of 1/2000 bichlorid of mercury solution was ordered twice daily, and an ointment of oxid of zinc with 8 per cent. phenol (carbolic acid) was applied at night. In a few days the pruritus was much better and the patient was not seen again until March 19, when she complained of much burning on urination.

Examination.—Suspecting an urethral caruncle I insisted on an examination, but I found nothing abnormal about the urethra, nor any vaginal discharge, but found a growth of the clitoris about the size of half a hazel-nut, with considerable infiltration of the surrounding tissue. The surface of the tumor was ulcerated and covered with a dirty purulent exudate; it bled easily when touched. There was no enlargement of the inguinal lymphatic glands.

Operation and Result.—Removal of the growth was advised and was done the next day under general anesthesia. The entire clitoris and upper half of the right labium minus were excised with a large amount of the infiltrated and reddened tissue surrounding same. The wound healed by primary union with exception of a small place at the lower angle at the labium minus, which healed in two weeks. So far there is no sign of any recurrence. At the upper part, near the clitoris, there was a small whitish patch of thickened epidermis known as leucoplakia, said to be suggestive of malignancy. The burning with urination has disappeared. The patient was not conscious of this little growth at any time, but thinks that it may have existed three months. The pruritus overshadowed the burning sensation until near the last. It only remains to mention that the pruritus was not dependent on the tumor but is slowly disappearing under the treatment mentioned above.

Examination of Tumors.—The tumor was hardened and examined by Dr. Baumhardt of this city, who pronounced it an epithelioma of squamous type.

ATTEMPT AT SELF-CASTRATION.

J. M. WOLFE, M.D.
KASBEER, ILL.

J. W., aged 30, was brought to my office May 13, suffering from a self-inflicted wound. He had laid open the scrotum and succeeded in getting one testicle out, but was unable to sever the cord on account of the intense pain. He had, however, mutilated the organ to such an extent that it became necessary to complete the operation. I tied off the cord and the tunica vaginalis separately with catgut ligature. Infection was feared, as he had used dirt to control the hemorrhage, but to my surprise he made an uneventful recovery without the least sign of suppuration.

The patient was a masturbator of the most pronounced type. He said he had accomplished the act as frequently as seven times a day, and he thought that by castrating himself he would get rid of the uncontrollable passion. He was somewhat deficient in gray matter, but had laid his plans fairly well for his work. He had shaved the hair off the pubes, hence it seems that he had some idea of cleanliness.

I was censured somewhat for not removing the other testicle. This would probably have not been justifiable from a legal standpoint, and I might have laid myself open to a malpractice suit.

A TONSIL PILLAR SEPARATOR.

DANIEL S. HAGER, M.D.
Alternate Assistant Surgeon Illinois Charitable Eye and Ear Infirmary, Ear, Nose and Throat Department.
CHICAGO.

Since the tonsil snare has come into general use for removing the faucial tonsil the problem of separating the adhesions of the tonsil and pillar has brought out many instruments. I have tried a number of the different makes and none has given me as good satisfaction as the one here shown, devised by me about one and one-half years ago. It can be used equally well for separating the pillars of either the hypertrophic or atrophic variety. The blade is set at such an angle as to conform to the anatomic curvature of the tonsil and fossa and by reversing is adapted to the curvature of either back or front pillar.

The top or fossa is started with a special knife (not shown here) and then continued down with this knife. The knife is shown with the double edges sharp, and this, in my experience, is desirable in separating a tonsil with a great deal of cicatricial adhesion, and especially where the tonsil has previously been partially removed with the old tonsillatome. For the hypertrophic tonsil in the young, however, or where the adhesions are only slight, the blunt-edged instrument would be preferable.

I can recommend it as a valuable instrument for this line of work.

181 West Madison Street.

UNSUSPECTED FOREIGN BODIES IN THE STOMACH REVEALED BY AUTOPSY.

GILBERT T. SMITH, M.D.
Assistant Superintendent Dr. Barnes' Sanitarium.
STAMFORD, CONN.

The following unusual case came under my observation while I was connected with the State Hospital, Danville, Pa.:

Patient.—J. A., a Pole, aged 35, from Susquehanna, Pa., was admitted to the institution Aug. 6, 1896.

History.—The mental status was one of melancholia terminating in dementia. There appeared little physical or mental change for several years. On Feb. 7, 1905, there was noticed a marked failure in the patient's physical health. Mentally he was quiet and gave no trouble. Physically he was weak and emaciated. For a week previously he had a rise of temperature. Several weeks before he had an attack accompanied with considerable pain in the region of the bladder.

There was present marked hematuria which disappeared in a week's time under irrigations of boric acid. Several of these attacks occurred which responded to the irrigation treatment.

On Feb. 15, the patient was gradually failing and lay couched up in bed with legs flexed as if from great distress. He denied having much pain, but the expression indicated suffering. Took plenty of nourishment in the form of milk, eggs and custard. Passed urine freely which contained albumin and considerable pus. Temperature, 101 F. to 104 F. and pulse small and compressible.

On Feb. 18, the patient died early in the morning. He had had several chills during the preceding few days. His temperature before death ranged from 101 F. to 103 F. A few hours prior to death an enlargement about one and one-half inches in diameter was discovered at the lower margin of the ribs and to the right of the spine, showing slight fluctuation. On aspiration about an ounce of bloody fluid of uriniferous odor was evacuated. Prior to aspiration the patient passed a small amount of bloody urine and with it a long fibrinous clot apparently from the urethra. About the same time he vomited his nourishment the first and only time during his illness. At the brim of the pelvis was noticed puffiness as of extravasation of urine. Death occured apparently from collapse.

Autopsy.—This revealed the following conditions: Rigor mortis well developed. Body emaciated. Slight adhesion at

Handkerchiefs, necktie, rubber tubing and other articles found at autopsy in the stomach of an insane man.

apices of the lungs which were easily broken up. Lung tissue anthracotic, crepitant and congested. Slight adhesions of liver and stomach to the parietes. Signs of an old general peritonitis. The stomach was very large and contained the following articles: 1 piece of half-inch rubber tubing 18 inches long; 1 piece of half-inch rubber tubing 14 inches long; 5 large red bandanna handkerchiefs; 1 teaspoon; 1 necktie with scarf-pin in place; 1 pair of spectacles; 1 rodent's skull; 1 piece of rubber band of suspender. In the small intestine was found one arm of the spectacles, the other being located in the abdominal cavity. The combined weight of the collection was 20 ounces.

Although the stomach appeared large and distended, it gave no evidence of its contents prior to the autopsy. There was no suspicion of the patient's peculiar fondness for such articles of diet. Only once was he detected in the act of attempting to swallow a foreign body. This happened to be the watch of a fellow patient. He was caught when placing the watch in his mouth. No particular attention was paid to this at the time other than attributing the occurrence to an aimless act of a dement.

The expression and position of the patient, especially in the latter stages, constantly denoted suffering, though he usually denied the existence of any pain. Throughout the course of his illness his appetite was good and he took sufficient nourishment. As a rule, he was noncommunicative, but occasionally he would smile. The mental aspect of the case was hopeless from the outset. I strongly regard his Polish nativity as a bad mental asset; these cases are not favorable and generally terminate in dementia. The physical condition of the patient was fair and he held up well for some years. Examination of the pupils showed nothing unusual, responding well to light and accommodation and were normal in size and regular in outline. The patella reflexes were slightly diminished.

Referring to the stomach contents as revealed by the autopsy, it is interesting to note that the handkerchiefs were twisted, having the appearance of being wrung out, and it is difficult to conceive how they were able to pass the glottis without the patient's choking. The pieces of rubber tubing gave evidence of having been in the stomach some time, the largest, I should say, at least a year, judging from the action of the gastric juice, which changed the consistency of the rubber to nearly that of putty. The teaspoon was discolored. The necktie and scarf-pin belonged to a fellow patient, who had missed the tie a month before. It was slightly discolored, but otherwise in good condition. The arm of the spectacles, which was found in the abdominal cavity, had penetrated the pelvis of the kidney. The skull of the rodent was well formed and complete. The photograph shows the articles contained in the stomach.

A CASE OF SCROTAL CALCULI.

HENRY BENJAMIN OERTEL, M.D.
President Pueblo County Medical Society.
PUEBLO, COLO.

History.—M. S., aged 38, white, had had for four months before I took charge of the case, (Nov. 5, 1906), swelling of and pain in the scrotum, penis and adjacent parts. He had also been troubled with leaking of the urine from two false openings through the penis situated one inch and one and three quarters inches, respectively, from the base. He gave a history of syphilitic infection of eleven months standing.

Examination.—His general condition was fair, facial expression anxious with normal temperature and exhilarated pulse. There was decided swelling of scrotum and penis and pus exuding from the meatus and the two false openings. The parts were so tender as to make a thorough examination impossible. After three days use of lead water and laudanum and codein, examination again was made, which revealed the sharp edge of a hard substance at extreme inferior border of scrotum, just to the left of the median line. The incision was enlarged and the body extracted, which latter proved to be a calculus—probably of calcium oxalate. The pain increased and the pus exuded more freely. The next day the patient was anesthetized, and with the assistance of Dr. J. W. Davis, three more calculi were removed. Collapse under the anesthetic stopped the operation. The symptoms diminished in severity and three days later the patient again was anesthetized and four more calculi removed. Two of these were in the same location as the first, and two, distinctly oval in shape, were removed from the inferior aspect of the base of the penis.

Postoperative History.—After the operation, the pain, swelling and suppuration materially decreased. Urine and pus continued leaking from the false openings. One week later another calculus was removed from the scrotum and the false openings were touched with pure phenol (carbolic acid). The

following day the pain stopped. The swelling gradually subsided, the false openings healed in a few days, suppuration stopped, and one week thereafter patient was discharged. The calculi were all decidedly adherent, necessitating their being torn away. There was no involvement of the tunica vaginalis as the testicles did not enter into the process. Antisyphilitic treatment was continued and the patient had no further trouble. The patient reported April 30, 1907, with no further symptoms.

Seven of these calculi fit well together, forming an ovoid mass 12 cm. by 6 cm. (4¾ in. by 2 5/16 in.) in circumference. Two calculi from base of penis fit together and measure 9 cm. by 5 cm. (3 ½ in. by 2 in.) in circumference.

A SIGNAL LANTERN FOR TESTING COLOR BLINDNESS.

JOHN IZARD MIDDLETON, M.D
NEW YORK CITY.

Consideration of several of the present types of lanterns for the above purpose shows them as expensive and complicated. The article, however, here described, while offering little originality, exhibits simplicity and

moderate cost, being well within the reach of the mass of examining oculists.

The apparatus consists of a Thorington's asbestos chimney, with iris diaphragm, and a double cell of half a trial frame attached in front of and below the circular opening in the chimney. The light within is either electric or gas; enclosed in a frosted bulb or chimney of an Argand burner.

The glasses for testing the colors are six in number, four being contained in the usual test-case: The red, the blue, the cobalt blue (for purple) and one for London smoke. This last can also be used in the several varieties furnished by the test-case. The remaining two necessary glasses, not found in the test-case, are: One standard green and one frosted throughout, and they, together with the Thorington chimney as above arranged, represent the extra equipment desired.

To employ the test a signal color is dropped into the cell next to the chimney, and in the forward cell is placed the frosted or else the London smoke glass, the latter thus presenting varying atmospheric conditions. The quantitative light-perception can be ascertained by working the iris diaphragm on whose side is a millimeter scale, showing the size of the opening admitting light. The additions to the Thorington chimney being light, the test is made easily and quickly and without tilting the chimney. Mr. E. B. Meyrowitz, of New York, has kindly furnished the model on whose working this description is based.

BIRTH OF QUADRUPLETS.

S. V. WILKING, M.D.
ROANOKE, IND.

The birth of quadruplets is sufficiently rare (1 in 371,126) to make of interest the following data regarding a case of this kind:

History.—The mother, aged 36, Irish, weighed 125 pounds and was one of three children born singly. She had been married 14 years and this was her eleventh pregnancy. In all of her previous pregnancies she had gone to term with the exception of two, in which she aborted. Three of her children had been stillborn, one of these being a breech presentation.

The father, aged 40, American, was one of seventeen children, all born singly.

Labor was rapid and the delivery, which was exceptionally easy, occurred May 30, 1907. The weight and sex of each child was as follows: First, 2 pounds 15½ ounces, female; second, 2 pounds 12 ounces, female; third, 2 pounds 15½ ounces, male; fourth, 2 pounds 15 ounces, female. None of the infants had any visible malformation and development in each seemed complete. The fourth child lived two and one-half hours; the first, three hours; the third, thirty hours, and the second was still living six days after birth, with fair prospects.

The placenta after delivery was grossly in two parts, but later examination seemed to indicate that there was a membranous connection, probably torn during labor. The first (smaller) part presented nothing unusual except that it was smaller than the average placenta, weighing with the membrane, 11 ounces. The second portion weighed 22 ounces and was divided into two parts, the smaller resembling the one just described except that the membranous connection with the larger part was unbroken. The larger part of the second portion was itself divided into two parts connected by placental tissue—possibly a placenta succenturiata. There was a separate amnion for each child.

Suggestions on Medical Inspection.—The governor of Massachusetts recently appointed a committee to prepare a circular of advice to the school physicians of the state to aid them in performing their duties under the lately enacted law requiring medical inspection of school children. We are indebted to Dr. Robert W. Lovett, Boston, for a copy of this pamphlet. The law requires the inspection of each school child at least once a year to determine whether he is suffering from any disability tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The information contained in the circular has been furnished by representative medical specialists of the state so that it represents the highest professional authority. The circular is suited to the use of teachers as well as school physicians and contains suggestions which will prove very valuable to them in detecting cases among the school children that afford reasonable suspicion of being affected with infectious diseases, or diseases or defects of the eye, ear, nose, skin, bones, teeth, or the nervous system. Sections on school inspectors, school furniture and school hygiene are added. The pamphlet may afford some valuable suggestions to school authorities who may desire to establish some form of school inspection even if it is not required by law.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE .... CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price.....Five dollars per annum in advance

[For other information see second page following reading matter.]

SATURDAY, JULY, 6, 1907.

THE FREQUENCY AND THE MARITAL CONSEQUENCES OF GONORRHEA.

The process of swinging the pendulum of medical opinion is an interesting one, both to the onlooker and to the participant, and it is undoubtedly beneficial exercise for the pendulum. Probably no pendulum has been more extremely overbalanced than the one carrying the status of the frequency and the late results of gonorrhea, since it was pushed to the farthest limits by Ricord, Lesser and others, who incriminated practically the entire masculine gender. It seems to have been gladly accepted that at least 80 per cent., if not 99 per cent., of all men have suffered from gonorrhea at least once; perhaps because such a conclusion permits the man who has been infected to look on himself as quite as good as his fellows, while he who has escaped the disease can boast himself as remarkably virtuous—or fortunate. Likewise the claims of Noeggerath and others as to the prevalence of female suffering from masculine unchastity have been well received by the pessimistic majority. A vigorous shove of the pendulum in the opposite direction has been delivered recently by Erb,[1] who introduces his paper in the following modest manner: "Some time ago—in my last, larger paper on the relationship of syphilis and tabes—I had occasion also to interest myself with the statistics of gonorrhea, and published at that time the beginning of such a statistical study. For more than twenty-five years I have deteriorated into statistical studies, and as they have, it seems to me, furnished to both science and myself valuable service, I have continued this occupation, which seems to be suitable and practicable for one who has no more the time and strength for greater scientific works."

Erb first shows by what unwarranted juggling of statistics many of the widely-quoted results have been obtained. For example, one investigator found that in one year 25 per cent. of the students in the Berlin students' sick benefit list were venereally infected, and promptly deduced that every Berlin student is infected once in four years. By similar mathematical calculations another observer has determined that every man who marries at 30 has passed through two attacks of gonorrhea—no more, no less! Individuality enters not into the calculations of such statisticians. Calculations on futurities of this sort are purely gratuitous, and the only accurate way to study such a subject is to learn the histories of mature men and find out what actually has happened, rather than to attempt to estimate, on the basis of a brief portion of the history of a few individuals, just what will happen to all the rest of mankind. Erb found that of about 2,000 of his male patients, representing all circles, but chiefly of the middle classes, whose sexual history was carefully investigated just 48.5 per cent. of all had had gonorrhea, while 45 per cent. had had neither gonorrhea nor syphilis. It must be admitted that a proportion of 45 per cent. of men free from venereal infection can not be a cause of great rejoicing, yet it is a decided improvement over the doubtful 5 to 20 per cent of clean histories grudgingly admitted by other statisticians. Furthermore, we are accustomed to believe that our American youths are not so prone to venereal infection as are the Teutonic students, soldiers and officers—a belief that is probably well founded.

As to the influence of this unclean 48.5 per cent. of all male patients on the health of their wives, which has been so gloomily portrayed by many gynecologists, the experience of practitioners who are familiar with entire family careers rather than with the selected material of the specialists, seems not to be so extremely bad. Among the wives of 400 of Erb's patients who confessed to having had gonorrhea some time previous to marriage, 375 (93.75 per cent.) had never suffered from pelvic infection that could possibly be of gonorrheal origin, and but seventeen (4.25 per cent.) had had what probably were gonorrheal infections. As for the influence of antenuptial gonorrhea on fertility, among 370 couples in this class 68 per cent. had two or more children, 25 per cent. had four or more children, and but 12 per cent. were childless, and in most of these cases some reason other than gonorrhea was evident.

It can not be denied that the prevalent pessimistic view of the effects of youthful gonorrhea on future marital happiness has had a wholesome effect in many instances, but it is equally true that many conscientious men have suffered pangs of remorse and fear that were founded on not entirely warranted apprehensions. That a revision of the current figures showing that Erb's experiences are not unusually favorable would lead to any lessening of the wholesome fear of gonorrhea is not to be expected, for at the best the conditions are bad enough to create a proper respect for the penalties of unchastity, provided these are thoroughly understood. As Erb says, it is not really necessary that fear of the horrible consequences that may follow a gonorrheal infection for a whole lifetime should destroy the entire future happiness of the victim, in order to keep alive that fear of infection which is the best preventive of irregular and unclean intercourse.

1. Münch. med. Wochschr., 1906, liii, p. 2329.

A PLEA FOR THE STUDY OF THE HISTORY OF MEDICINE AND NATURAL SCIENCES.

An address with this title was read before the American Anthropological Association at its meeting on December 31, 1906, by Bernhard Laufer of New York.[1] There are several points in this address that are of special interest to American physicians. In the first place, Laufer emphasizes the fact that at present, in practically all branches of sciences, there is a marked and newly-awakened interest in historical investigations. The nineteenth century is now thought by many students of sciences to have been disregardful of the links connecting science with the accomplishments of former ages, while at present there is an effort to restore the connections with earlier periods and thus to place scientific knowledge on a firmer and broader basis. As evidence of this modern interest in the historical development of medicine and other branches of science, Laufer cites the increased attention given to medicoscientific historical studies and the relatively large provisions now being made for academic instruction, research and museums in these lines in Germany, in which country the young historical spirit appears to have found its fullest expression.

A comprehensive museum for the history of medicine "illustrating its development, from the times of prehistoric man down to present day, in anatomy, surgery, hygiene, endemic diseases and other phases" as yet exists nowhere. Plans for such a museum are now being discussed in Germany. Temporary exhibitions have been held in various places, most recently in Berlin, and with great success, so far as evidenced by the interest taken in them. The suggestion that larger effort toward securing such exhibitions for the annual meetings of the American Medical Association should be made than has been the case so far lies close to hand. While we in America have not yet been able to do so much as is desirable in promoting the study of historical medicine, it is proper to call attention to the fact that here, too, the interest in historical matters is growing actively. To the members of the Johns Hopkins Medical School must be given the honor of leadership in this field in this country, and *The Medical Library and Historical Journal*, published in Brooklyn, and now in its fourth volume, is in every way an adequate and creditable publication. Packard's "History of Medicine in the United States" and Mumford's "Medicine in America," as well as biographical and other studies, may be cited as further indications that the historical spirit is well represented here also. By arranging exhibitions at the annual meetings of the association popular interest in medical history and development would receive a powerful stimulus.

Laufer makes a strong plea for a comprehensive American museum representing the development of medicine, natural science and other technics in their whole range. There are few propositions that can be urged with more justification than this on our rich men who wish to do something of general benefit with their wealth. No one will question the benefit to the people and the aid to medicine and science of an institution of this kind. The temporary tuberculosis exhibits are examples of what is possible in this direction. "A full historical representation of the all endemic and the great epidemic diseases . . . would be a matter of great public service." As agencies of progress in civilization medicoscientific museums certainly will equal the museums of art and of natural history. It is curious, indeed, that this choice opportunity to promote knowledge has remained so largely neglected. If physicians would take active interest in plans like that suggested by Laufer realization would certainly be hastened.

1. Science, June 7, 1907.

THE PHYSIOLOGIC ACTION OF LIGHT.

As we enter on the season when the amount of light to which people are exposed is much increased, and in which it is usually thought that health is better because of the influence of sunlight, certain recent observations and investigations with regard to the physiologic action of light on living things are worthy of note. Major Charles E. Woodruff, Surgeon U. S. A., who has devoted much attention to the subject of the effects of light on animal tissues and metabolism, has reviewed the recent contributions to this subject in *American Medicine* for April, 1907. Major Woodruff states that the young rats which he raised in the full glare of sunlight were stunted to a remarkable degree, though all other conditions of their environment were extremely favorable for nutrition and growth. He seems, however, to have overlooked the fact that rats do not naturally live in the sunlight and that by exposing them to it he placed them in an abnormal environment. It may not be that the old impressions are quite so erroneous as certain recent observations would seem to indicate, but it is evident that the whole subject of the physiologic action of light in unlimited quantities must be considered as open for further observation before definite conclusions can be reached.

It is especially on the nervous system that an excessive amount of light exerts a deleterious effect. Some of the lack of initiative so common in tropical countries is now attributed to the depressing action of sunlight on the nervous system. As a consequence of this, neurasthenia is more common in tropical countries than it is in the temperate zone and much more frequent than it is in cold climates. Dr. W. King found neurasthenia of such frequent occurrence in Porto Rico that in an article in THE JOURNAL[1] he called it tropical neurasthenia. By the name he did not mean to differentiate it from neurasthenia as seen in other zones, but merely to indicate its prevalence in the tropics. Dr. Woodruff

1. THE JOURNAL A. M. A., May 19, 1906.

during his service in the Philippines pointed out the frequency of neurasthenia there, and Dr. Fales has done so independently since. These physicians are confident that light and not heat is the cause of the condition. While this is true to a large extent, a contributing cause is probably the fact that Americans do not adjust their habits to climatic conditions, but try to live as active lives in the tropics as in the northern United States. The symptoms that develop differ little from the undoubted actinic neurasthenia found among *x*-ray workers as a result of long-continued exposure to weak Roentgen rays or to the so-called Roentgen ray atmosphere. The nervous breakdowns among the soldiers and officers of our Army in the tropics are directly attributable, Woodruff claims, to the evil effects of light.

One important fact, Woodruff asserts, is being very clearly brought out by observations from all over the world: People who are deeply pigmented stand sunlight much better than others. Blonds, he states, suffer from the ill effects of strong light very soon and some are affected seriously. This fact has a definite application in certain phases of the treatment of tuberculosis. The prognosis for blonds is not so good as for brunettes because owing apparently to the evil effect of light on them, they do not respond so well to the open-air treatment. It has been recognized that the generality of men in this country are living in a climate that has somewhat more sunlight than their race was accustomed to, and that consequently the health is better the farther north the statistics of the population are gathered. In the United States Army, for instance, according to the surgeon-general's report, the average health is much better in the north and in Alaska than it is in the south. Some of that tendency to nervous symptoms which has been designated "the American disease" seems probably due to living in a climate with more light than the race is yet accustomed to.

On the other hand, emphatic attention is called in recent years to the fact that cloudy climates where there is not much light are the most suitable for neurasthenic conditions. A few weeks of life in such a climate will often relieve most of the symptoms of neurasthenia contracted in very lightsome climates, though there will often be immediate relapse if the patient returns to the sunny climate. Authorities in nervous diseases frequently recommend the darkened room for several hours daily as an important addition to the treatment in these cases. Certain of the dark, thick forests of Europe, as, for instance, in Switzerland, have been found especially favorable situations for the treatment of neurotic conditions. It is even considered that trees around houses, though they take away some of the sunlight, add to the healthfulness, because they give welcome shade and so prevent the constant reflex irritation of sunlight. There have been a few sporadic complaints on the part of some writers in recent years as to the presence of trees around houses because they obscure the sunlight, but the common practice of men for so many hundreds of years would seem after all to be founded on common sense as well as esthetic grounds.

It is evident that sunlight of itself has a definite effect on human beings quite apart from temperature, and that while this fact is often beneficial, there may be an excess of stimulation from light which may prove harmful. The whole subject of the influence of light on human beings is now under process of review from many standpoints, and the observation of many investigators will be needed before definite conclusions can be reached. The fact that sunlight kills pathogenic germs is of itself beneficial. It must not be forgotten, however, that germs are living cells, and that human beings are practically only colonies of cells, and are not different in essential vital qualities. If too much sunlight is bad for germs it may also be harmful for human beings. There is in this matter of the supposed absolute benefit of exposure to sunlight the possibility of a theory being carried too far, and so doing harm rather than good. Careful observations are needed not alone from the specialist in nervous diseases and tuberculosis, but from the general practitioner before the subject can be definitely settled.

Some of the recent observations with regard to the effect of light and darkness on men would seem to prove almost too much. Major Woodruff is sure, for instance, from many sources that suicides and crimes and misdemeanors are much less frequent during cloudy weather than during sunny weather. Certainly this is contrary to the impression that has prevailed, and even to the statistics, especially in the matter of suicides. We referred to the subject in THE JOURNAL for January 19 from the opposite standpoint. Every physician of any considerable experience knows that in cloudy weather, and especially during a succession of dark, muggy days, nervous patients are prone to feel intensely depressed and need the supporting care of the physician and every possible form of encouragement to lift the burden of their physical lowering of tone. The other side of this question—the possibility of too much light having a like effect—is, of course, extremely important, but requires much more careful observation to support it, since the universal feeling of physicians in this matter and their personal experience counts for so much in showing them that a succession of dark days acts critically on individuals of neurotic temperament.

CANINE PIROPLASMOSIS.

The study of the parasitic protozoa is now being so ardently pursued that for the time being bacteria have dropped into the background. The pathogenic trypanosomes, thanks largely to the impetus given by the work of Novy, have been the center of interest for a long time, but other protozoan parasites are rapidly coming to the front. Some of these are proving to

be even more difficult to study than the trypanosomes, and we are but slightly advanced in our knowledge of their complicated life histories. Bit by bit, however, the remarkable life cycles are being worked out. Recently Nuttall and Graham Smith[1] have made an elaborate study of the infection of dogs with *Piroplasma* and have reached a number of important conclusions.

Piroplasma, it will be remembered, is a minute intracellular parasite first discovered by Theobald Smith in the blood of cattle affected with Texas fever. Similar parasites, apparently belonging to the same genus, have been found in the sheep, the horse, the dog and in some other animals. Piroplasmosis of the dog has been observed in France, Italy, South Africa and in a few other countries. It is possible that the parasites in the European and African forms are different, although this has not been proved. The symptoms produced by *Piroplasma* in all animals seem to be essentially the same. The acute form is accompanied by anemia, hemoglobinuria and usually some jaundice. As in malaria, the parasite invades the red corpuscles. Canine piroplasmosis, like all the other *Piroplasma* infections, is conveyed by tick bite.

Nuttall and Graham Smith have traced in thoroughgoing fashion that part of the life cycle of *Piroplasma canis* which is passed within the blood of the dog. The course of development may be summarized briefly as follows: A free pyriform parasite enters a normal red corpuscle and soon assumes a rounded form. It then increases in size and passes through an active ameboid stage, after which it again becomes rounded and quiescent. This stage is followed by the protrusion of two processes, which rapidly enlarge and become pear-shaped. Evertually all the protoplasm of the parasite flows into these processes and the original body of the parasite is greatly diminished in size until it becomes a minute round mass, to which the pyriform processes are attached by their pointed ends. Finally this also disappears and two similar pear-shaped parasites are left in the corpuscle. These remain joined together for a time by a thin strand of protoplasm. The parasites are eventually liberated and make their way to fresh corpuscles, in which they enter anew on the developmental cycle. During this stage the chromatin or nuclear material passes through various interesting changes, a portion of the chromatin of the original parent entering each pear-shaped process at the time division occurs. Sexual forms have never been observed.

These careful studies are sure to cause renewed interest in the study of piroplasmosis. Texas fever, which is perhaps the most important of the *Piroplasma* infections, is very common in the United States, and a piroplasmosis of the sheep also has been reported from at least one of the western states. It is possible that the spotted fever of the Rocky Mountains, which has been studied by Chowning and Wilson, Anderson, Ricketts, King and others, may prove to be a form of human piroplasmosis. It is certainly significant that, as shown by Ricketts, this disease is communicated by the bite of the tick. All known forms of piroplasmosis seem to be spread by the agency of this insect.

1. Jour. of Hygiene, 1907, p. 232.

TENNESSEE PRACTITIONERS AND THE VERBATIM RECORDING OF LICENSES.

A decision of the Supreme Court of Tennessee makes many of the physicians of that state illegal practitioners. In passing on a suit involving the collection of certain fees for medical services, the court decided that the account could not be collected by process of law. The reason assigned was that the physician's license had not been recorded *verbatim* by the county clerk and, the time fixed by law for such recording having elapsed, that the license was, therefore, void. This seems an imposition on the physician, who certainly had conformed to the statutes so far as his part was concerned. It seems that by the failure on the part of the county clerks to do their duty the physicians of the state are unwittingly subject to the penalties for illegal practice. In addition to this they have, in the aggregate, been put to a vast amount of trouble, inconvenience and expense in having to get their licenses renewed. It is hard to see what utility there can be in the word-for-word transcription of the licenses in the registration book. A physician's license is not like a real-estate instrument or a will, containing its special descriptions and important details; it can vary only in such matters as names, dates, etc., and these presumably are all that it has been thought necessary to record. It is to be hoped that this Tennessee precedent will not be followed elsewhere. To guard against it, however, it would be well for the state society committees on legislation and political action in states with similar laws to look into the matter so that trouble similar to that which has developed in Tennessee may be avoided.

LATENT DIPHTHERIA.

While we have come to consider diphtheria as a manageable disease, it is still a troublesome problem to the sanitarian as well as serious and inconvenient to the patient. Antitoxin is a very expensive remedy, it is not always immediately available, particularly in country districts, and we can hardly consider it an infallible remedy. A still more serious embarrassment is the sometimes protean character of the disease which allows it to go unrecognized and untreated until serious consequences are inevitable. Many physicians have had to make retrospective diagnoses of diphtheria to account for formidable paralyses, etc., in their patients, while the control and prevention of the disorder is greatly hindered by this fact of its almost impossible diagnosis, in so many cases, by the ordinary clinical methods. The subject of latent diphtheria, treated of in this issue of THE JOURNAL by Dr. M. Solis-Cohen, is, therefore, a very important one. We are still in the dark, or at least in considerable obscurity, as to whether or not all the diphtheria-like bacilli are to be classed together, as is done by some bacteriologists. It is, moreover, mani-

festly impossible to secure a notification of every case that may be diphtheria; sore throats are too common and too little regarded by those who suffer from them, and, as Variot says, it often would depopulate the schools to isolate these patients. It would seem, therefore, that, to a great extent at least, we shall be compelled to take what comfort we can in the fact that careful investigations show but a very minute proportion of actually virulent bacilli in the throats of healthy persons. There is another satisfactory consideration, viz., that the contagion of diphtheria is generally rather direct and not, like that of scarlatina, extremely pervasive and capricious. Much can be done, however, by the use of rational methods of prevention such as the use of immunizing doses of antitoxin and the judicious control or isolation of persons who have been exposed to the disease and who have the bacilli in their throats even though they may not present any signs of the disease. It is to be borne in mind that such persons may be convalescent from slight attacks of latent diphtheria without exudate. Of course the restrictions in such cases will not have to be so rigid as in some others, but these patients should be at least kept under control and prevented from disseminating the disease. According to Dr. Solis-Cohen, if a person has not been exposed to diphtheria the presence of such germs may be disregarded, provided there has been no antecedent sore throat. The diphtheria-like bacilli found in such persons are practically always non-virulent, and the examination of several thousand throats by the Massachusetts Boards of Health, without inquiry as to exposure, showed virulent bacilli in 0.2 per cent. The bacteriology of diphtheria has not yet been fully elucidated and further investigations as to the relations of the Hoffman and the Kleb-Loeffler bacilli are still in order before we can put the sanitary control of the disease on a firm basis.

ACCOMPLICE OR DUPE.

In the attempt to interest and benefit their readers it is but natural that literary periodicals should invade the medical field, and, as is well known, some very creditable articles on hygiene and domestic medicine have appeared in many such magazines. A recent article in *Leslie's Weekly*, however, is of an entirely different character. An account of the opening in New York of a so-called hospital for the treatment of cancer by the notorious Alexander method furnishes *Leslie's* an opportunity to present a fine example of journalistic enterprise, probably creditable to its counting room but not to the paper itself. While the description of the opening of this so-called hospital appears in the body of the paper under the title "Progress in Medical Science," it appears to be a typical "write-up" in all its glory, including carefully constructed clinical histories of cured (?) cases, well suited to delude the lay readers. Ostensibly the "progress in medical science" referred to is the opsonic theory, and the lay reader is led to believe that this Alexander method is an outcome of the application of the opsonic index to the treatment of cancer. While the opsonic theory is only a very recent one, the cases reported were under treatment years ago before the word "opsonin" was even known. A little thing like this, however, does not count in the hands of such people. Incidentally some of these remarkable "cures" recorded in *Leslie's Weekly* have been incorporated for a long time in the advertising literature sent out by the Alexander people. Admiration for this enterprise on the part of *Leslie's Weekly* gives rise to curiosity: How comes it that a paper that claims to be reputable is willing to impose on its readers a nostrum and to help delude with false hopes those suffering from malignant disease, who, in dread of the knife, are ready to grasp at anything which offers them an escape from an operation and to trifle with quackery until it is too late, or who, in their desperation, are willing to grasp at any straw? Can it be possible that the principles underlying the editorial management of *Leslie's Weekly* have been so lowered that the reading columns of that paper are open to frauds for the revenue to be derived? Either this, or that publication has been beautifully humbugged.

Medical News

ALABAMA.

Society Meeting.—At the annual meeting of the Medical Society of Franklin County, Dr. William P. Hughes, Russellville, was elected president, Dr. J. W. Nance, vice-president, and Dr. William P. Hughes, county health officer.

Personal.—Dr. Benjamin J. Baldwin and family, Montgomery, sailed from New York for Europe, June 18.——Dr. Erasmus T. Camp has been made president and Dr. Ira C. Ballard secretary of the temporary organization for the erection of a general hospital at Gadsden.

Hillman Hospital Staff.—The board of governors of the Hillman Hospital, Birmingham, recently taken over by the Jefferson County authorities, consists of the following: Drs. Thomas D. Parke, Charles Whelan, Dyer F. Talley, Hardee Johnston, and Mr. Job Going. The hospital was opened to receive patients June 1.

Opposed to Indiscriminate Prescription of Liquor.—The Jefferson County Medical Society has placed itself on record as being opposed to the indiscriminate prescribing of liquor by physicians, and suggests, to limit such illicit prescriptions, that every prescription be recorded in a book open to inspection by the county health officer, the record to show the prescriber, date, amount, kind of liquor, etc.

Medical College Plans.—President J. W. Abercombie of the University of Alabama and the dean of the medical department of that institution, held a conference with Dr. Rhett Goode and T. M. Stevens, who form a special committee appointed for arranging and carrying out the plans of improvement to the Mobile Medical College under the $40,000 appropriation recently made by the state legislature. It is believed that the improvements on the college will be completed before the session opens in October next.

ARKANSAS.

Sanatorium Ensured.—A sanatorium to cost $12,000 will soon be erected in Searcy, with initial accommodation for 50 patients. Drs. Jarrett M. Jelks, Luther E. Moore and John B. Grammar are in charge of the institution.

New Medical Examiners.—The governor has appointed the following members of the State Board of Medical Examiners: Dr. Montague Fink, Helena, vice Dr. Benjamin L. Harrison, Jonesboro; Dr. M. L. Norwood, Lockesburg, reappointed, and Dr. George S. Brown, Conway, vice Dr. Louis E. Love, Dardanelle.

Appoints Irrigation Delegates.—The president of the Arkansas Medical Society has appointed Drs. Dewell Gann, Benton; Adolphus G. Clyne, Bethel; Matt S. Dibrell, Van Buren; Clifford H. Trotter, Helena, and Andrew E. Cone, Portland, delegates to the National Irrigation Congress, to be held in Sacramento, Cal., in September next.

Personal.—Dr. Owen G. Blackwell, **Pine Bluff, has returned after five months abroad.**——**Dr. Arthur B. Loving has been elected president and Dr. John S. Jenkins secretary of the Pine Bluff board of health. Drs. Camillus K. Caruthers, Orlando C. Hankison and Benjamin D. Luck are the other medical members of the board**——Dr. Eugene H. Abington, Beebe, has been elected president of the Citizens' Association of that place.——Dr. Orange K. Judd has been elected secretary of the Little Rock board of health.

CALIFORNIA.

Physicians' Building.—A building intended for the exclusive use of medical men is being erected in San Francisco at the corner of Sutter and Stockton streets.

Personal.—Dr. Charles S. Stoddard, **Santa Barbara, is reported to be seriously ill.**——**Dr. James T. Fisher, Los Angeles, has recently been appointed a member of the State Board of Lunacy from Los Angeles County.**——**The honorary degree of Master of Arts was conferred on Dr. Stanley P. Black, Pasadena, by the Northwestern University, Chicago, June 20.**

Plague at San Francisco.—**In the case of the patient removed from the steam tug *Wizard*, May 23, who died in the Marine Hospital four days later, and who was believed to have had bubonic plague, bacteriologic examinations on June 8 confirmed the diagnosis. The seaman in question had been sleeping on the tug, and at intervals had taken his meals at a boarding house in San Francisco. The tug was to have been disinfected on her return to port, but sunk on May 29.**

COLORADO.

Wins Suit from Healer.—Louise Schneider, Colorado Springs, who sued an alleged magnetic healer for $250, was given a verdict of $155 by a jury in the Los Angeles county court.

New Medical Society.—The Clear Creek County Medical Association was organized at Idaho Springs in January, on the standard plan, with Dr. Axel Aberg as secretary and treasurer.

CONNECTICUT.

Personal.—Dr. Theodore G. Wright has been appointed medical examiner of New Britain, vice Dr. Edwin B. Lyon.

Anti-Vaccination Bill.—An adverse report by the Committee on Public Health and Safety on the bill to abolish the compulsory vaccination law, was approved by eight of the eleven members of the committee.

School Physicians.—**The Senate passed, June 4, without opposition, a bill providing for the optional appointment of school physicians to examine pupils, and also teachers and janitors when necessary.**

Tent Hospital.—**At a meeting of the Board of Park Commissioners, Hartford, June 3, permission was granted to the Hartford Hospital to establish a free hospital tent in Riverside Park for the use of sick children.**

Infectious Diseases.—**During May the following infectious diseases were reported: Smallpox, 9 cases in 3 towns; measles, 543 cases in 54 towns; scarlet fever, 153 cases in 42 towns; cerebrospinal meningitis, 5 cases in 4 towns; diphtheria, 156 cases in 37 towns; whooping cough, 110 cases in 23 towns; typhoid fever, 38 cases in 21 towns, and consumption, 51 cases in 22 towns. The health officers of 59 towns reported that they had not been notified of any infectious diseases.**

May Mortality.—**During May 1,320 deaths were reported in the state, equivalent to an annual death rate of 15.8 per 1,000. Heart disease caused 160 deaths; diseases of the nervous system, 155; consumption, 137; pneumonia, 120; accidents and violence, 87; bronchitis, 33; diphtheria, 19; influenza, 17; measles and whooping cough, each 15; scarlet fever and erysipelas, each 10; cerebrospinal meningitis, 9, and typhoid fever, 7. The deaths from infectious diseases were 242, or 18.3 per cent. of the total mortality.**

IDAHO.

Hospital for Barracks.—Advice has been received from the War Department to the effect that a hospital building to cost $20,000 will be erected at once at the barracks in Boise.

State Board Notes.—Dr. William F. Howard, Pocatello, has succeeded Dr. Jesse L. Conant, Jr. Genesee, as secretary of the State Board of Medical Examiners.——**Dr. Warren D. Springer, Boise, has been appointed secretary of the State Board of Health.**——Dr. Orfila J. Allen, Bellevue, has been appointed a member of the State Board of Medical Examiners.

ILLINOIS.

Personal.—**Dr. Allen M. King, Jacksonville, was thrown from his automobile in a collision with a telephone pole in Virginia, June 18.**——**Dr. Thomas W. Curry, Streator, was operated on for appendicitis in St. Mary's Hospital in that city, June 17, and is reported to be doing well.**

Medical Staff Appointed.—**The medical staff of the Brokaw Hospital, Bloomington, has been reorganized with the following officers: President, Dr. Joseph K. P. Hawks; vice-president, Dr. Robert A. Noble, and secretary-treasurer, Dr. John L. Yolton. The number of members on the medical staff has been restricted to twelve.**

Communicable Diseases.—**Three cases of smallpox are reported to exist at the University of Illinois, Champaign.**—— **The inspector of the State Board of Health reports that there have been 112 cases of smallpox in Peoria and there are still 8 cases in the Isolation Hospital.**——**Dr. Tolbert F. Hill, Athens, reports a number of cases of scarlet fever.**——**Smallpox is reported from Aurora. Dr. Charles E. Crawford, Rockford, inspector for the State Board of Health, is in charge of the situation. At present there are nine houses under quarantine and in one house there are said to be 13 patients.**

Chicago.

Automobile Ambulance.—An automobile ambulance equipped with the latest appliances has been added to the equipment of Cook County Hospital.

Mortality of the Week.—**During the week ended June 29 479 deaths were reported, equivalent to an annual death rate per 1,000 of 11.85. Tuberculosis caused 59 deaths; pneumonia, 47; Bright's disease, 41; heart disease, 39; violence, 36; cancer, 33; acute intestinal diseases, 29, and nervous diseases, 22.**

Tuberculosis.—**The Chicago Tuberculosis Institute is preparing to distribute copies of a consumption catechism prepared by the board of health of New York, among 600,000 public school children of Chicago.**——**An entertainment was given by the Hull House Woman's Club, June 23, under the auspices of the Chicago branch of the Jewish Consumptives' Relief Society of Denver, to raise funds to assist in building an addition to the society's hospital in Denver.**

Report of Committee on Criminal Abortion of the Chicago Medical Society.—**At the annual meeting of the Chicago Medical Society, this committee reported that its work had been principally in the direction of securing the removal of advertisements of abortionists from the daily press. In this the committee has been remarkably successful, having brought about a condition which never obtained before; it has removed all criminal medical advertising from the Chicago newspapers. Three of the leading newspapers consented to this line of action after a presentation of the facts by the committee. The others complied only after being notified by the postal authorities that they must comply or have their papers excluded from the mail, the committee having furnished the government with proof that the advertisers were willing to perform abortions. This committee also rendered valuable service in the prosecution of criminal operators with the result that at least two have been sent to Joliet, others have left the city, some are being prosecuted, and the others and the newspapers are being watched. The chairman, Dr. Rudolph W. Holmes, suggested the possibility of meeting with other organizations, such as the Legal Aid Society, and the employment of a competent attorney, who should be appointed as assistant state's attorney and who would soon become versed in all matters pertaining to the prosecution of this class of cases. The work of this committee shows what can be accomplished by fearless, honest men, who are working for the good of the people.**

INDIAN TERRITORY.

Personal.—Dr. Benjamin F. Fortner, Vinita, has been appointed surgeon of the Frisco Hospital, Springfield, Mo.—— Dr. Louis Bagby, Vinita, has been appointed local surgeon for the M., K. & T. and Frisco systems.——Dr. Bonaparte P. Norvell has been appointed city physician of Muskogee.——Dr. John W. Hains, Muskogee, has moved to Kansas City.

Society Meeting.—**At the annual meeting of the Muskogee Medical Society, May 4, the following officers were elected: President, Dr. J. Hutchings White; vice-president, Dr. James T. Nichols; secretary-treasurer, Dr. Oscar C. Klass, and censors, Drs. Ira B. Oldham, Pleasant P. Nesbitt and M. R. Thompson. The society is carrying out a systematic post-graduate course in its program of meetings for the year.**

Hospital Notes.—**A move is on foot to erect a hospital building in Muskogee to cost about $100,000, which will be in**

charge of the Sisters of Mercy.——The medical profession of Ardmore contemplates building a hospital in that city, to cost not less than $15,000. The committee having the matter in charge consists of Drs. Jerome C. McNees, Thomas S. Booth, Robert H. Alvis, William T. Bogle and Philip Stephens.——Dr. P. S. Mitchell is building a sanatorium at Haskell at a cost of $11,000.

MARYLAND.

Baltimore.

Tuberculosis.—The secretary of the Maryland Association for the Prevention and Relief of Tuberculosis reports that there are between 5,000 and 6,000 cases of tuberculosis in Baltimore, 763 being under the care of the Visiting Nurses' Association.

Herter Lectures.—The next annual course of lectures on the foundation established by Dr. and Mrs. C. A. Herter will be delivered about the end of April, 1908, by Edward A. Schaefer, LL.D., Sc.D., F.R.S., professor of physiology in the University of Edinburgh, Scotland.

Scholarship Endowed.—Mrs. Bertha Rayner Frank has endowed a medical scholarship at the University of Maryland, in memory of her late husband, to be known as "the Dr. S. Leon Frank Scholarship." The interest of $2,500 is to be applied annually to this scholarship.

Phipps Institute.—Drs. A. G. Rytina, Eugene Kerr and S. R. Clarke have been appointed examining physicians in the Phipps Tuberculosis Dispensary of the Johns Hopkins Hospital. Since its establishment, a little over two years ago, more than 1,600 patients have been enrolled on the books of this institution.

Personal.—Drs. W. S. Baer, C. C. McDowell, Elizabeth Hurdon, sailed for Europe June 26.——Dr. R. T. Taylor of the Hospital for Crippled and Deformed Children, has gone to Blue Ridge Mountains to take charge of the summer branch of that institution.——Dr. R. G. Harrison, associate professor of anatomy at Johns Hopkins and editor of the *Journal of Experimental Zoology*, has been appointed to the Bronson professorship of comparative anatomy at Yale.

MASSACHUSETTS.

Hospital Opened.—The Henry Heywood Memorial Hospital, Gardner, was formally opened June 25. The presentation of the hospital to the corporation was made by Mrs. Henry Heywood and Miss Helen R. Heywood.

Medical Inspection of School Children.—The Lawrence board of health has voted, under the present law, to take charge of the medical inspection of public school children, thus relieving the school committee of this part of their public duty.

Personal.—The governor has appointed Dr. Edward T. Worth, Edgarstown, medical examiner of Dukes County, and Dr. John C. Frazer, East Weymouth, medical examiner for Norfolk County.——Dr. George W. Holmes, Boston, has been elected resident physician of the Long Island institutions, vice Dr. Nathaniel P. Thayer, resigned.

Society Meetings.—At the annual meeting of the Hampshire Medical Society, held in Northampton, May 9, the following officers were elected: President, Dr. Justin G. Hayes, Williamsburg; vice-president, Dr. George D. Thayer, Northampton; secretary, Dr. Arthur G. Minshall, Northampton; treasurer, Dr. Alfred H. H. Hoadley, Northampton, and librarian, Dr. Wallace E. Brown, Northampton.——At the annual meeting of the Franklin District Medical Society, held in Greenfield, May 14, Dr. John W. Cram, Coleraine, was elected president; Dr. Charles L. Upton, Shellburne Falls, vice-president; Dr. Clara M. Greenough, Greenfield, secretary-treasurer, and Dr. F. E. Johnson, Erving, committee on trials.——The Essex North District Medical Society held its annual meeting in Lawrence and elected the following officers: President, Dr. William J. Sullivan, Lawrence; vice-president, Dr. Charles E. Durant, Haverhill; corresponding secretary, Dr. Robert D. Hamilton, Newburyport, and auditor, Dr. George M. Atwood, Haverhill. At its last meeting the society resolved that its members and all the profession in sympathy should not examine ordinary insurance applicants for a fee of less than $5. Copies of this resolution have been sent to each physician in the jurisdiction of the society and to each insurance company licensed in the state.

MICHIGAN.

Society Meetings.—At the annual meeting of the Blackwell Medical Society, held in Detroit, May 21, the following officers were elected: President, Dr. Harriet L. Hawkins; secretary-treasurer, Dr. Jean A. Vernier, and councilors, Drs. Lucy J. Utter, Grace M. Clarke and Juanita I. Lea, all of Detroit.——At the annual meeting of the Wayne County Medical Society, held May 20, the following officers were elected: President, Dr. Alva N. Collins, vice-president, Dr. Kenneth Gunsolus, and secretary, Dr. Walter D. Ford, all of Detroit.

NEW YORK.

Italian Hospital for Buffalo.—Dr. Charles R. Borzilleri has obtained an option on the purchase of a building at 208 Niagara Street at a cost of $25,000 for an Italian hospital.

Fresh Air Hospital.—The Buffalo Fresh Air Mission Hospital is open for the season. It is situated about 20 miles from Buffalo on the shores of Lake Erie. It is devoted to the care and treatment of cases of cholera infantum.

Communicable Diseases.—Trachoma is reported to be spreading at an alarming rate in Riverhead and vicinity.——An epidemic of diphtheria prevails at the Orphan Asylum, Gerry, where several inmates are ill and one death has occurred.

Polish Hospital for Buffalo.—Property has been purchased on Stanislaus Street, between Fillmore Avenue and Beck Street, for a site for a Polish hospital. The property has a frontage of 205 feet, but 400 feet may be had if needed. It is said that the cost of the hospital will be $100,000. The decision to build this hospital was made at a meeting at which all the Polish priests of the city were present.

Annual Report of Nyack Hospital.—At the annual meeting of the Nyack Hospital Association on June 26, the report of the work of this institution from October 1 to June 25 was presented. The finance report showed a balance in favor of the hospital. The total number of patients treated was 252, with a total of 4,199 hospital days. The officers elected were: President, S. R. Bradley; vice-president, W. B. Conrad; treasurer, Dr. Charles D. Kline.

To Fight Pollution.—The special committee on pollution of the Merchants' Association announces that Governor Hughes has begun a thorough investigation into the pollution of state rivers and streams by pulp and sulphid mills. He has ordered Dr. Eugene Porter, the state commissioner of health, to make inquiry into complaints in regard to mills at Fort Edward, Glens Falls and other points in that vicinity. A public hearing has been ordered at Fort Edward on July 8.

Conditions in Tuberculosis Wards.—As a result of the investigation recently made by the tuberculosis commission of the Buffalo Charity Organization Society, and its report to the board of supervisors concerning conditions in the tuberculosis wards of the Erie County Hospital, the supervisors have decided to fence in the tuberculosis wards at a cost of $2,000 and to construct six shacks for open-air treatment at a cost of $700 apiece and to furnish better and more food, clothing, etc., for the patients.

Society Meetings.—The annual meeting of the Alumni Association of the Medical Department of the University of Buffalo was held at the university May 29 and 30 and June 1 and 2. Dr. Charles P. Norton, vice-chancellor of the university, delivered the annual address on the subject of university extension, making an appeal for $25,000, to be expended in advancing the interests of the student body. The following officers were elected: President, Dr. Allen A. Jones, Buffalo; vice-presidents, Drs. Fitch H. Vanorsdale, Belmont; George A. Himmelsbach, Buffalo; Charles L. Preisch, Lockport; N. Victoria Chappell, Buffalo, and F. H. Stanbro; secretary, Dr. Franklin W. Barrows, Buffalo, and treasurer, Dr. Herman K. DeGroat, Buffalo.——The Blackwell Medical Society, Rochester, elected the following officers: President, Dr. M. Louise Hurrell; vice-president, Dr. M. May Allen; secretary, Dr. Harriet M. Turner; treasurer, Dr. Sarah H. Perry, and councilors, Drs. Sarah R. Adamson Dolley and Cornelia White-Thomas.

Personal.—Dr. Charles F. Howard, Buffalo, has been appointed a member of the state prison commission.——Dr. John G. Meidenbauer, Buffalo, was recently operated on for appendicitis at the German Hospital.——Dr. James W. Putnam, Buffalo, will sail for Europe in a short time.——Dr. John D. Howland, medical examiner of Buffalo, narrowly escaped losing his life June 18, while rescuing a drowning man.——Dr. Galette B. Gilbert, Rochester, was severely bruised about the head in a collision between his automobile and a trolley car, June 16.——Dr. Jessie L. Herrick, Elmira, has gone to Vienna.——Dr. Charles E. Darrow, Rochester, sailed for the Mediterranean, June 29.——Dr. George W. Clark, Waterloo, was struck by a train June 22, receiving injuries which will necessitate the amputation of his left foot.——Drs. James W. Putnam and George Himmelsbach, Buffalo, will spend the summer in Europe. The former will attend the International Neurological

V 4
190

Congress at Amsterdam, Holland.——Dr. John G. Meidenbauer was successfully operated on at the German Hospital for appendicitis.

New York City.

Physician Exonerated.—The case of Dr. William S. Louis, Brooklyn Hills, charged with having performed a criminal operation, has been dismissed by the grand jury of Queens County and the district attorney has discontinued all action, releasing the bondsmen and completely exonerating Dr. Louis from all blame.

Personal.—Dr. William Salant, of the department of biologic chemistry of Columbia University, has accepted the position of adjunct professor of physiologic chemistry and pharmacology at the University of Alabama.——Dr. Benjamin W. Zipser disappeared June 11, and no trace of him has been found. ——Drs. W. G. McCormick, M. D. Sullivan and Edward Kennedy have resigned as resident physicians at Lincoln Hospital.

To Study Foreign Filtration.—Comptroller Metz will leave for Hamburg on July 9 to investigate the filtration plant there; he will investigate other filtration plants in Europe, and will consult in general with European authorities so that he may get continental knowledge on the subject in all its branches. No work will be done on the proposed filtration plant at the west branch of the Jerome reservoir until next autumn.

Eddyite Arrested.—Clarence Byrne, an Eddyite whose 6-year-old daughter died without medical attention, was arrested at the instance of the coroner on the charge that he failed to furnish medical attention for his child when she was dying of bronchopneumonia. At the inquest the man testified that ten of his children and his wife had died since he had taken up the faith, and that none of them had received medical attention until a few moments before death.

Junior Sea Breeze.—The open-air camp hospital opens Monday with a much wider sphere of activity than formerly. Five pavilions have been erected on the high ground overlooking the river, and are open on all sides. Instruction is given to mothers daily in the care of babies, bathing, clothing, feeding, and fresh air. Sea Breeze last year sheltered 3,000 for permanent stays, and 23,051 including day trips. It is expected that 25,000 will be provided for this year. The running expenses are $50,000 a year, collected by voluntary subscriptions.

Alumni Meet.—At the twenty-seventh annual meeting of the Alumni Association of the Long Island College Hospital, Brooklyn, held May 28, the chief addresses were delivered by Dr. Joseph D. Bryant, President of the American Medical Association; Supreme Court Justice J. E. Crane, Rev. H. P. Dewey, Drs. John Harrigan, F. E. West and William N. Belcher, retiring president of the alumni association. The following officers were elected: President, Dr. William E. Butler; vice-president, Dr. Sylvester J. McNamara; recording secretary, Dr. James Watt; treasurer, Dr. John S. Read; historian, Dr. John J. A. O'Reilly; assistant historian, Dr. T. M. Brennan, and councilors, Drs. William N. Belcher and Clarence R. Hyde, all of Brooklyn.

Garbage a Menace.—Owing to the striking drivers of the New York street cleaning department the decaying garbage has accumulated in the streets, particularly on the crowded East Side, until it has become a menace to health. It is estimated by the commissioner that over 2,000 tons of refuse are in the streets; in a number of localities the people have endeavored to dispose of this refuse by burning it in the streets. Many complaints have been made, both to the department of health and to the mayor. As a result Health Commissioner Darlington has turned the matter over to the assistant sanitary superintendent, Dr. Walter Bensel, who has put to work cleaning the worst streets all the available force at his command that could be properly guarded by the police.

Russell Sage Institute of Pathology.—Mrs. Russell Sage has given $300,000 to found the Russell Sage Institute of Pathology to perform the duties of pathologists for the City Hospital and the City Home for the department of charities on Blackwell's Island. Mrs. Sage makes a special request that this institution make a specialty of research into the problems of all diseases, and more especially to those incident to old age. This is the first time in New York that there has been a cooperation of private beneficence and city support in the development of scientific work in any institution, but there is a precedent in Frankfort, Germany. Mrs. Sage delivered to the Russell Sage Foundation securities to the market value of $300,000, the income of which is to be applied to the institution. It is provided in the gift that the institution, which will be incorporated, shall be organized according to the plans and under the direction of Drs. E. G. and T. C. Janeway, with whom are to be associated on the board of trustees, as ex-officio members, the commissioner of charities and the president of the medical board of the City Hospital, and as individual members, Dr. B. Bryson Delavan, Dr. Simon Flexner and Prof. Graham Lusk. It is provided that the salaries of the scientific workers, the expense of special research work, and the maintenance of a proper working library and the publication of results will be borne by the income of the endowment, while the buildings, their care and the cost of the routine work directly for the patients will be borne by the city.

PENNSYLVANIA.

Personal.—Dr. Benjamin M. Bartilson, Braddock, who was operated on for appendicitis, is recovering.——Dr. A. P. Hitchens, Glenolden, sailed for Liverpool, June 22.

Carnegie's Gift to Cambria.—Andrew Carnegie has presented the county of Cambria with a 600-acre tract of ground one mile from Cresson. On this property an insane asylum will be erected by the commissioners.

Anti-Spitting Crusade.—In an effort to enforce an anti-spitting ordinance, arrests by the wholesale were made in Pittsburg, June 26, by the health officers who patrol the streets of the downtown sections, and arrested many persons for spitting on the sidewalk. Nearly 100 arrests were made and the offenders were fined $1 each. There was no discrimination as to race, color, creed or station in life. The health officers assert that arrests will continue until there is a positive abatement of the nuisance. In most cases the offenders claimed that they had violated the ordinance unconsciously.

Child Labor in Pennsylvania.—The annual report to Governor Stuart of Chief Factory Inspector Delaney shows that Pennsylvania can show a less percentage of employed children under 16 than any other state in the union. In 1906 there were 40,371, a percentage of 4.75 less than any time since 1889. The inspector remarks that this is a small number out of 1,500,000 children, of which 1,245,117 are enrolled in public schools. The department learned that there were 60 accidents of a fatal character and 844 non-fatal occurring in the children's labor department in 1906.

Philadelphia.

Public Baths Opened.—Eighteen public bath-houses were formally opened June 24.

Personal.—Dr. and Mrs. Charles W. Fox have returned from Europe.——Dr. and Mrs. Arthur V. Meigs sailed for Bremen, June 25.——Dr. Wendell Reber sailed for Liverpool, June 22. ——Dr. Joseph Farley sailed for Europe, June 29.

To Finish New Hospital.—After nearly two years work will be resumed on the buildings of the new Municipal Hospital. It is expected that $50,000 will be appropriated for the small-pox hospital buildings and the power-house. After they are completed additional provision will be made for the other buildings.

Chickens Pronounced Good.—After investigation by Dr. A. C. Abbott, chief of the bureau of health, and Dr. A. F. Schreiber, chief meat inspector, a consignment of chickens to the State Hospital for the Insane, at Norristown, were pronounced clean and healthful. This consignment of chickens was the balance of a shipment sent to the hospital, and the first lot was said to be the cause of ptomain poisoning in 250 attendants and inmates.

Typhoid Decreases.—It is stated by the bureau of health that during the six months ended June 29 there had been a decrease of about 1,500 cases of typhoid fever in the city, as compared with the corresponding six months of last year. Comparing the same period also, the decrease in the scarlet fever cases this year was about 100, and of diphtheria about 130. There has been a progressive decrease in scarlet fever in the last three years as marked as the 50 per cent. reduction which occurred in the six years previous thereto. This continued reduction the authorities believe means that scarlet fever can be controlled largely by daily inspection of the school children and isolation.

Health Report.—The total number of deaths reported for the week ended June 29 is 444. This is a decrease of 19 from the number reported in the preceding week, and a decrease of 59 from the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 14; measles, 5; pertussis, 2; diphtheria, 5; cerebrospinal meningitis, 9; tuberculosis, 54; apoplexy, 22; heart disease, 30; acute respiratory diseases, 27; enteritis, 25; Bright's disease, 48; congenital debility, 6; suicide, 3; accidents, 9; marasmus,

4. One hundred and thirty-six cases of contagious diseases were reported, with 20 deaths, as compared with 170 cases and 16 deaths reported in the previous week.

RHODE ISLAND.

Personal.—Dr. Arthur H. Harrington, New York City, has been appointed director of the State Hospital for the Insane at Providence, vice Dr. Jewett, who has resigned.

Society Elects Officers.—At the annual meeting of the Woonsocket District Medical Society, held June 26, the following officers were elected: President, Dr. E. D. Clark; vice-president, Dr. John J. Baxter; secretary, Dr. William F. Barry; treasurer, Dr. George R. Smith; councilor, Dr. William C. Monroe; censors, Drs. Joseph T. Roswell, Robert G. Reed and J. E. Tanguay, all of Woonsocket.

Tuberculosis Crusade.—Rhode Island manufacturers are carrying on an organized campaign against the spread of tuberculosis among their employés. For nearly a year local mill owners and executive officials, aided by physicians, have given special attention to the ravages of this disease, which claimed hundreds of victims from among the employés of textile factories. It has been shown that in the state there were 1,031 deaths from tuberculosis in 1905, or more than twice the total number of deaths from eleven other preventable and communicable diseases combined. To check the disease the Society for the Prevention and Relief of Tuberculosis has been formed, one of the chief objects of which is to secure legislation of the proper nature.

TENNESSEE.

Society Meeting.—A number of physicians of Hardin County met in Savannah recently and organized the Hardin County Medical Society. The following officers were elected: President, Dr. James K. Barlow, Savannah, and secretary, Dr. William E. McDougal, Savannah.

Commencement.—The Medical Department of the University of the South, Sewanee, held its fiftieth annual commencement June 20 to 27. Among the commencement orators were Dr. Ira Remsen, president of the Johns Hopkins University; Dr. Francis H. Smith of the University of Virginia, and Chancellor J. H. Kirkland of Vanderbilt University.

TEXAS.

New Site for College.—The management of the College of Physicians and Surgeons, Dallas, has purchased for $12,580 a new site on the corner of Richardson Avenue and Ervey Street.

Hospital Notes.—Dr. A. O. Scarborough, Abilene, has purchased a site on which he will erect a hospital to cost $100,000. ——A building permit has been issued for the construction of a hospital at El Paso to cost $7,400.——St. Patrick's Sanitarium, Paris, is to be converted into a hospital, which will be in charge of the Sisters of Mercy.——Dr. Charles H. Breuer, recently of Yoakum, has moved to Taylor to establish a private hospital in the Vance building.

Health Conference.—A health conference was held recently between the State Health Officer Brumby, Dr. Charles W. Trueheart, city physician of Galveston, and a representative of the North German Lloyd Steamship Company relative to the handling of immigrants in the port of Galveston who are suffering from contagious or infectious diseases. It is possible that a tent hospital will be erected on the beach east of the seawall, near the John Sealy Hospital, for handling such cases.

Personal.—Dr. Homer B. Jester, Corsicana, has been appointed surgeon of the T. & B. V. Railroad.——Dr. Vic Oatman, Austin, suffered a severe injury as the result of a collision between his buggy and a street car recently.——Dr. and Mrs. Eugene R. Carpenter, El Paso, sailed for Europe, June 11.——Dr. John H. Florence, Brownsville, who has been in charge of the Sabine Pass quarantine station, has succeeded Dr. James P. Tucker as quarantine physician of Galveston. ——Dr. J. A. Sadler, Sherman, is seriously ill at his home in that city.

Communicable Diseases.—Smallpox in severe type is reported to be prevalent in the neighborhood of Kenney.——The smallpox epidemic at Hillsboro has subsided and every white patient has been discharged.——There are reported to be five or six cases of smallpox in West.——In the John Sealy Hospital, Galveston, there are reported 13 cases of smallpox. Five tents have been erected outside the seawall, near the John Sealy Hospital, and nine patients are under treatment who developed the disease while en route from Bremen.——Several cases of typhoid are reported near Georgetown.——Measles is said to be epidemic at Cameron.

CANADA.

New Medical Society.—The Toronto Pathological Society, Toronto Clinical Society, Toronto Medical Society and Ontario Library Association have disbanded to form a new organization known as the Academy of Medicine. The following officers were elected: President, Dr. James F. W. Ross; vice-president, Dr. Alexander McPhedran; honorary secretary, Dr. Herbert J. Hamilton, and honorary treasurer, Dr. David J. G. Wishart.

Elections.—The Academy of Medicine, Toronto, has elected the following officers: President, Dr. James H. W. Ross; vice-president, Dr. Duncan A. McPhedran; secretary, Dr. Herbert J. Hamilton, and treasurer, Dr. David J. Gibbs-Wishart.—— The St. John (N. B.) Medical Society has elected the following officers for the ensuing year: President, Dr. Thomas H. Lunney; vice-president, Dr. Charles M. Pratt; secretary, Dr. John Bentley; financial secretary, Dr. George G. Corbet; librarian, Dr. Rowley; pathologist, Dr. William Warwick, and treasurer, Dr. James Christie.

Changes at McGill.—At the annual meeting of the governors of McGill University, June 21, the following announcements were made: Dr. Thomas G. Roddick, professor of surgery, resigned; Drs. James Bell and George A. Armstrong were appointed professors of surgery and clinical surgery; Mr. George Warrington Latham, Providence, R. I., was appointed sessional lecturer in English in the faculty of medicine for 1907 and 1908; Dr. Andrew MacPhail was appointed professor of history of medicine, and Dr. J. L. Todd was appointed professor of parasitology.——Seventy-four students passed the examination of the medical faculty.

Personal.—Dr. J. Playfair McMurrich, professor of anatomy in the University of Michigan, has been appointed professor of anatomy in the University of Toronto, vice Dr. Alexander Primrose, resigned.——Dr. John H. Leeming, bacteriologist to the city of Winnipeg, has gone on a trip to Great Britain. In his absence his department will be looked after by Dr. S. J. Pierce.——Dr. T. A. Starkey, professor of hygiene in the medical department of McGill University, has gone to Europe.—— Dr. Charles F. Martin, associate professor of medicine in McGill University, has returned from Germany.——Dr. W. Henry B. Aikins, one of the editors of the *Canadian Practitioner and Review*, Toronto, has returned from Europe.——Hon. J. S. Helmcken, M.D., Victoria, B. C., has just celebrated his eighty-second birthday. Dr. Helmcken was the first speaker of the legislative assembly of British Columbia in 1855.——Dr. Friend R. Eccles has been made dean of the Medical Faculty of the Western University, London, vice Dr. Walter H. Moorhouse, who resigned.

FOREIGN.

Subsidy for Scientific Research in Austria.—The National Academy of Sciences at Vienna has given Professor Finger $400 to aid him to continue his experimental work with vaccination against syphilis; Professor Kreidl has been given $200 to continue his research on photometry at the seashore, while Pfeffer receives $300 to aid him in his effort to produce an effectual serum for anthrax. About $60 has been given to Bayer of Innsbruck, who is conducting research on the origin of the autolytic ferments.

International Laboratory on Monte Rosa.—August 15 is the date set for the formal inauguration of the laboratory on Monte Rosa in Switzerland for research on problems involving high altitudes. There are specially equipped laboratories for botany, bacteriology, zoology, physics and meteorology, the buildings located at an altitude of about 1,000 feet. The international laboratory for study of physiology at high altitudes is located on the Gnifetti peak of the mountain, which is about 14,000 feet above the level of the sea. There are accommodations here for scientists from various countries, Italy having 5 posts at her disposal, England, Belgium, Germany, France, Austria and Switzerland having each two, and America one. Applicants for the posts can apply to Prof. Angelo Mosso of Turin, corso Raffaello 30, Turin, Italy, explaining the nature of the research they would like to take up and the length of time they wish to devote to it.

A Medical Scholarship at Oxford.—Dr. C. T. Williams has founded a medical schoiarship at Oxford, his old college. The *Lancet* states that this is the first medical scholarship in the university. It is to be called the "Theodore Williams Medical Scholarship" and is to be adjudged after open competition. Natural science is to form a predominant part of the examination. Every candidate, before admission to the examina-

tion, will be required to state in writing his intention to proceed to the degree of B.M. and B.Ch. in the University of Oxford and to practice medicine or surgery. The stipend is to be $500 a year, and the scholarship will be tenable for four years and in exceptional cases for five years. It is to be administered by the master and fellows of the college, and in case the holder is found unworthy they will have power to suspend him or even to deprive him of his scholarship. Candidates will be required to pass all the examinations necessary for the degree of B.A., of which that of the Honor School of Natural Sciences shall be one. Candidates must be unmarried and not over 21 years of age at the time of election, and in addition must present testimonials of good conduct covering the two years preceding their application.

VIENNA LETTER.

(From our Regular Correspondent.)

The New Lunatic Asylum.

VIENNA, June 17, 1907.

The erection of the new general hospital necessitates also the completion of the large lunatic asylum which the municipality is bound to open at the same time as the hospital. The asylum will consist of three parts entirely independent of each other: the asylum proper, the home and a sanatorium for the wealthier patients. The whole building comprises fifty-nine different buildings, among them the church (capable of seating 500 worshipers), the administrative pavilion, a theater and concert hall, pavilions for the staff and police, two large kitchens, a postoffice and a house for such patients as require occupation treatment (gardening, carpentry, etc.). There will also be laboratories and pavilions for the patients. The institution will accommodate 3,000 patients, and will be the largest of its kind on the continent, and will, of course, contain the latest appliances for the care of the patients. In connection with the public asylum, the sanatorium, a novel feature for Austria, will be managed by the municipality. This contains accommodation for 350 in-patients, who can afford to pay at least $2 a day for their care. An institution for hydro-, electro- and mechano-therapeutic measures is also at hand. The patients in all the three houses will have the utmost amount of personal liberty. Great care has been taken in regard to ventilation and heating and illumination of the pavilions; the system of low-pressure central steam heating has been adopted, and electric light and electric ventilators are employed throughout. The calculations, based on the experience of other large asylums, provide for a yearly admission of 1,800 to 2,000 new patients.

Determining Purity of Air by Electric Light.

During the last six months the Vienna board of health has, conjointly with the meteorologic observatory of the city, made systematic examinations of the purity of the air. The method used was discovered by chance. In the center of the city an illuminated fountain has been playing for some time, in which the water jets are lighted from below by means of powerful electric lights. From the observatory, about four miles distant, on certain nights a beam of light could be seen shooting upward and reflected by the clouds. Observation revealed the fact that the light beam could be seen in portions and its distinctness depended on the clearness of the air. When smoke or dust were present the ray was easily visible, while on certain days, such as Sundays and holidays, when many factories were inactive, the beam could not be seen. In the winter on clear, cold nights, when the air was remarkably dry, the beam could be seen reflected from a cloud nearly nine miles high, while its track could not be made out, proving the absence of dust and other foreign material in the air. Research is now being made to determine the relationship between impurities in the air and diseases of the respiratory tract.

Gardens on Hospital Roofs.

The committee having in charge the construction of the new General Hospital has ordered that the roofs of the 39 pavilions shall be made into gardens. The site of the hospital is such as to get the pure breezes from the mountains in the neighborhood of the city; by means of elevators, patients will be able to reach the roof of the pavilions. Acting on a suggestion of Billroth's and renewed recently by von Gleich, special beds will be put on parts of the roof where surgical patients will be able to have their wounds exposed to the action of sun and air. The dermatologic and pediatric clinics also will have beds on the roof garden of their pavilions for the same purpose.

Pharmacology

NOSTRUM ADVERTISEMENTS IN RELIGIOUS PAPERS.

The Reverse of the Shield.

From time to time we have called attention to the shameful way in which religious papers, as a class, sell their pages to the exploiters of nostrums of the most fraudulent character. Church papers come in closer touch with their subscribers than any other law publications. The influence wielded by such papers is immense and their responsibility correspondingly great. It is a matter for congratulation, therefore, to find that many of the higher class of church papers are slowly, but none the less surely, dropping this class of advertising. We have previously published[1] the fact that the *Christian Herald* and the *Alabama Baptist* either do not carry objectionable advertising or are getting rid of it as fast as contracts expire. We are glad to learn from the *Ohio State Medical Journal* that the *Lutherische Kirchenzeitung*, published at Columbus, Ohio, is one of the few religious journals that carries not only no medical advertisements, but has never done so. This record is so unusual that we quote the editor's reply to a letter from the Ohio League for the Suppression of Fraudulent Advertising:

> I am happy to state that the paper (*Lutherische Kirchenzeitung*) has never published a line of advertising for self-treatment, in fact of any medical remedy. We are opposed to the whole business of pouring unknown drugs or fluids of doubtful character into people and are using our influence against it.
>
> My church body would call me sharply to task if I took a different course.
>
> I must thank you for sending me the reprint of Collier's articles, of which I knew, but which I had not myself read. I shall endeavor to say something in my editorial items concerning this bad medicine business.
>
> E. C. H. LENSKE,
> Editor *Lutherische Kirchenzeitung*.

As the *Ohio State Medical Journal* says: "This testimony does credit to one of the largest and most important church bodies in the United States."

PRESBYTERIES TAKE ACTION.

We had occasion in a previous issue[2] of THE JOURNAL to call attention to the case of the *Cumberland Presbyterian* and the correspondence that Dr. B. H. Blair, of Lebanon, Ohio, had with its editor. As an aftermath it is interesting to note that the following recommendation by Dr. Blair was recently adopted by the Miami presbytery:

> Miami Presbytery, in regular session at Covington, Ohio, this the third day of April, 1907, being convinced, by evidence furnished by those qualified to speak on the subject, that practically all medical advertisements appearing in religious papers are grossly exaggerated, misleading and fraudulent and can not consistently with the purposes of such religious papers be carried by them, we therefore wish to record our unqualified condemnation of the practice of such publications in thus transcending their province and impairing their influence by selling space for such deceptive and fraudulent advertisements, and we recommend and urge editors and publishers of all our publications to exclude all such advertisements. We are confident that the exclusion of such advertisements is not only expedient but right. Such action, we are convinced, will meet with the hearty approval of all Christian readers who are informed on this subject, and will increase the influence for good and the respect in which these publications are held. We recommend that this action be recorded in the minutes of this Presbytery and that copies of it be sent for publication to the *Herald and Presbyter*, the *Interior*, and the *Cumberland Presbyterian*.

No less encouraging is the unanimous adoption of a resolution, almost identical with the one above, by the presbytery of Lima, Ohio. After referring to the "immoralities and fraudulent practices" in the "patent-medicine" business "as conducted by the Proprietary Association of America," it goes on to say:

> We declare it our purpose to refuse endorsement to church publications which refuse to comply with this requirement. That public announcement of this our purpose may be made, a note of this action is directed to be inscribed in the minutes of this meeting by the clerk, and copies of the same sent by him to the *Herald and Presbyter*, of Cincinnati, Ohio, and the *Interior* of Chicago, for publication.

PETITION THE GENERAL ASSEMBLY.

Resolutions similar in import to the above were also adopted by the presbyteries of Mahoning, Portsmouth, Steubenville and Columbus—all in the synod of Ohio. When the general assembly of the Presbyterian church met recently, overtures

1. THE JOURNAL, Feb. 2, 1907, 435.
2. THE JOURNAL, Feb. 2, 1907, 423.

were made asking for an official expression of opinion on this subject. The committee to which this was referred, while expressing its strong sympathy with the intent of the overture, called attention to the fact that the church has no control over journals representing themselves as organs of the Presbyterian church. As a matter of fact, such papers are not organs of the church at all, but simply private enterprises conducted for gain. This being so, the assembly had no jurisdiction and could merely recommend that fraternal council be sent to the publishers asking them to exclude from their columns "all advertisements of patent and proprietary medicines suspected of being fraudulent." It was not specified who is to do the "suspecting."

While this official action is not all that might be hoped, yet that was due, not to the committee, but to the system that permits private concerns to control the semi-official organs of the church. From a practical standpoint there can be no question as to the outcome. The church journals, of the better class at least, seeing the handwriting on the wall, will refuse to renew their contracts with the "patent medicine" vendors.

The clergy of the Presbyterian church are awakened to the questionable character of the advertisements carried in the papers which they recommend to their people. There is no doubt that this awakening is due, in general, to the work of the Ohio League for the Suppression of Fraudulent Advertising, and in particular to the energetic work of its executive committee, Drs. D. R. Silver, B. H. Blair, H. M. Lorimer, E. W. Mitchell and J. C. M. Floyd.

OXYCHLORINE.

Report of the Council on Pharmacy and Chemistry.

The following report on Oxychlorine has been submitted to the Council by the subcommittee to which it was assigned:

To the Council on Pharmacy and Chemistry:—Your subcommittee submits the following report: The Oxychlorine Chemical Company, 1326 Wabash Avenue, Chicago, states in its advertising literature that:

"Chemically, Oxychlorine is the tetraborate of sodium and potassium combined with oxychlorid of boron, thus: $6(NaKB_4O_7)BOCl_3$."

Analysis of Oxychlorine showed:

Potassium	12.26 per cent.
Sodium	8.20 per cent.
Chloric acid—ClO_3	25.32 per cent.
Nitric acid—NO_3	21.70 per cent.
Boric acid anhydrid—B_2O_3	18.63 per cent.
Water, calculated	13.29 per cent.

Thus, Oxychlorine is not a definite chemical substance of the composition claimed, but instead is a mixture of alkali chlorate and nitrate with boric acid. Assuming that the chlorate is present as potassium chlorate and the nitrate as sodium nitrate, the analysis above quoted corresponds to a mixture approximately as follows:

Potassium chlorate	37.19
Sodium nitrate	29.76
Sodium and potassium tetraborate	2.18
Boric acid	30.52
Undetermined	0.35
	100.00

Your committee recommends that Oxychlorine be not approved and that this report be published.

The report of the subcommittee was adopted by the Council, and in accordance with the recommendation is published herewith. W. A. PUCKNER, Secretary.

In commenting on the above report it is hardly necessary to call attention to the palpable untruthfulness of the furnished formula, or to its lack of correspondence with the real composition of the preparation, to the imposing claims made by its pseudo-scientific exploiters, or to the absurdities, from a chemical standpoint, of the statements made in their literature. These features are more or less common to all nostrums. The physician who prescribes or uses Oxychlorine under the impression that he is getting a definite and unique chemical compound described as tetraborate of sodium and potassium combined with oxychlorid of boron is, according to our chemists, getting simply a mixture of potassium chlorate, sodium nitrate (or, perhaps, sodium chlorate and potassium nitrate), and boric acid in about equal amounts. More than one-third of this mixture is potassium (or sodium) chlorate, a drug by no means harmless.

In order that there may be no suspicion of unfairness to the promoters of this preparation, we quote from one of the advertising circulars sent out by the Oxychlorine Company:

"Oxychlorine owes its recognition as a therapeutic agent to its six principal qualities:

"1. It will oxygenate the blood at the seat of application, prevent infection, maintain nutrition, and heal an uninfected solution of continuity of first intention without scar formation.

"2. It will disorganize all pus and ferment-producing micro-organisms, their toxins, ferments, and ptomains.

"3. It will restore an inflamed mucous membrane to its normal condition, except where the membrane is sclerosed or atrophied.

"4. It will destroy pathogenic micro-organism and their toxins in the blood current.

"5. It will stimulate the blood to absorb more oxygen in the lungs that it at the time carries. [We do not know what this means, perhaps the Oxychlorine Company does.]

"6. It is absolutely harmless to the tissues and will not destroy a living cell."

Surely these people must have access to physiologic and chemical authorities not found in modern medical libraries, or else their esoteric researches into the mysteries of life must have carried them far beyond the ken of our most advanced workers along these lines. The scientific world would receive with great interest information as to how a mixture of potassium chlorate, sodium nitrate and boric acid oxygenates blood, maintains nutrition and causes healing without scar formation. A mixture which will destroy micro-organisms and yet will not destroy a living cell certainly shows a fine sense of selection and discrimination not heretofore expected of a combination of chemicals or of a chemical compound. How like the wonderful elixir of medieval times, which was to the Christian a tonic and to the heathen a poison.

Here is another claim made for this nostrum:

"Two or three rectal injections of a one to two per cent. solution of Oxychlorine and ten grain doses given six to eight times per day is the best and most reliable treatment for typhoid fever."

If eighty grains of Oxychlorine contains thirty grains of potassium chlorate, three rectal injections of one pint of 2 per cent. solution would contain approximately 160 grains of potassium chlorate, a total daily dosage of 190 grains. Such an injection might prove decidedly dangerous, especially when used by one ignorant of its true composition. However, the physician, not the promoters, bears the responsibility.

Oxychlorine sells at $3.50 a pound; the ingredients can be obtained for about 44 cents a pound. Perhaps the margin of profit is intended as a reward due the promoters for the profound physiologic discoveries announced in their reading matter.

Proprietary Medicines in America.

Our esteemed British contemporary, the *Medical Press and Circular*, comments on the work of the Council on Pharmacy and Chemistry thus:

There is no doubt that the general practitioner is often at a loss to know what proprietary medicines he may find of legitimate use in his practice. He has neither the time nor the ability to test the value of all the nostrums brought to his notice, and he would be ill repaid if he did so. Bearing such facts in mind, the American Medical Association a year or two ago determined to attempt a differentiation of proprietary drugs of real and legitimate value from those which a self-respecting practitioner had better avoid. The task has been to a certain extent completed and the Association has issued a list of drugs of the former class. No preparation has been admitted without its full formula having been furnished for publication, and no preparation—other than foods and disinfectants—has been admitted which is advertised to the public. Various other conditions have been imposed, and the result is a catalogue which can hardly fail to be of general utility. In its task the Association has naturally been met by violent opposition, not only from the vendors of secret preparations, but from many of the viler medical papers which are at the orders of those who advertise in their columns. It is to be congratulated in bringing its work to a successful issue in spite of this opposition.

The above in the main is correct; but "the task to a certain extent" has not been completed—rather it has only been well commenced.

Correspondence

Simple Filing Device for Case Records.

OTTAWA, ILL., June 24, 1907.

To the Editor:—The article of Dr. Farr in THE JOURNAL, June 22, prompts me to mention a simple filing device which I have found useful. For years I have kept important case records on slips of paper, thick enough to be easily fingered over when filed, as in a card catalogue. At first I used cards, but found it no easier to manipulate them, and they add very materially to the bulk. With the multiplication of the records, however, it became a little troublesome to look up a case during a busy office hour. In order to lessen the number of record units to be gone over I have, for the past few months, adopted the method of placing each patient's, or in some cases each family's, history slips in a half envelope—that is an envelope sealed and cut midway between the ends. I have used slips 3½ by 4¼ inches. These fit readily, as to width, in No. 6¾ envelopes. A good quality of envelope, as regards durability and facility of handling, is XXX white.

The slips are about one inch longer than the half-envelopes, which makes their insertion or removal easy, yet they do not fall out under ordinary handling. The face of each container is 3¼ by 3½ inches, available for printed forms or other memoranda.

Only the envelopes are touched in looking for a case, so that the slips are not soiled or worn if kept in a suitable cabinet or desk drawer. Each half-envelope will hold from six to ten slips without filling it so full that the slips can not be easily inserted. The envelopes enable one to use thinner paper for the records, thus taking less space than a card system. Of course, any size slips and envelopes could be used. The cost is nominal. The quality of envelopes mentioned sell, wholesale, at about $1.25 a thousand, which makes 2,000 containers. The envelopes can be cut at any printing office at a small cost. I have paid from 50 cents to $1 a thousand for the blank slips.

This method is not suitable for clippings or miscellaneous papers, but for any records that can be made on a nearly uniform size of paper it is convenient.

A. M. SHAW, M.D.

The First Successful Ligation of the Innominate.

ANGUILLA, MISS., June 17, 1907.

To the Editor:—In the June 15 issue of THE JOURNAL, page 2032, in your splendid editorial notice of that distinguished surgeon and educator, Dr. Herbert L. Burrell, President-elect of the American Medical Association, you say among other things: "He was probably the first to make a successful ligation of the innominate artery."

With no wish to pluck a single arrow from Dr. Burrell's quiver, but, on the contrary, to accord him every honor his talent and matchless will power have won for him, it may be asked: Is this statement historically correct? Both Valentine Mott and von Graefe nearly succeeded in carrying their cases to a successful termination. The patient of the former survived nearly four weeks, while Graefe's gave promise of complete success, only to succumb after a lapse of more than two months. Forty years or more ago the world accorded credit to Dr. Smythe of New Orleans for having successfully performed this difficult operation fraught with so much risk to the patient and anxiety to the surgeon. It is too well known that pleurisy or secondary hemorrhage proved to be the stumbling block in all recorded cases prior to Smythe's operation. To avoid the latter complication he ligated the common carotid and subclavian arteries on the right side, and the vertebral artery near its place of origin to obviate recurrent hemorrhage, in addition to avoidance of injury to the inferior thyroid and other deep veins, the pneumogastric and cardiac nerves, and the pleura, while carefully passing the curved aneurism needle around the innominate artery. All this occurred in the year 1865, or prior to that year, and before the modern method of antiseptic operation was dreamed of, or thought of. See the New Sydenham Society's "Biennial Retrospect" for 1865-6, page 346. J. C. HALL.

ANSWER: In making the statement we were aware of the work of Mott and von Graefe, so nearly successful, but we overlooked Smythe, and we are glad to give credit where it is due and to thank our correspondent for calling our attention to this point.

Since writing the above reply a letter has been received from Dr. Hubert A. Royster, Raleigh, N. C., calling attention to the same point.

University of Nebraska in State Board Statistics.

LINCOLN, NEB., June 26, 1907.

To the Editor:—In connection with the statistics regarding medical graduates, as published in THE JOURNAL, May 25, a grave injustice has been done the College of Medicine of the University of Nebraska. The figures for Nebraska state that 7 candidates passed, 7 failed. The secretary of the Nebraska State Board of Health certifies as follows:

> The 7 failures of graduates of the State University in the year 1906 were —— on his third, fourth and fifth examinations; —— on his fourth and fifth; and —— on his second and third. All of the graduates of last year from the State University who took the examination before our board passed.

The persons mentioned received no training under the State University. They were responsible for the failures in 1905 as well as those of 1906. The class of 1906 were the first to complete its training under the university. Every member of this class and of the class of 1907 has passed the state board examinations, and the average rank in these examinations has been high; accordingly, it seems unjust to estimate the work of the institution by the continued failures of earlier men who did not receive training under it.

HENRY B. WARD, Dean.

[As has been frequently stated, the statistics based on state board examinations have heretofore shown *instances* of success and failure rather than individuals passing and failing. In the majority of cases the showing in this manner would not be unjust since repeated successes would reflect credit on the college the same as repeated failures would reflect discredit. In future, however, steps will be taken to eliminate duplication as far as possible. The three men alluded to in the above letter graduated in 1905 and were given diplomas bearing the name of the University of Nebraska, which makes that institution responsible for them.—ED.]

Miscellany

Status of Yellow Fever Throughout the World.—Information published by the Public Health and Marine-Hospital Service in the *Public Health Reports* gives the status of yellow fever during the current calendar year, up to June 28, throughout the world as follows:

UNITED STATES.—Aside from imported cases arriving at quarantine, there has been no yellow fever this year. In March, 4 cases, one of which terminated fatally, were brought to Galveston, Texas, on a vessel from Para; and a single case, which occurred en route, arrived in the convalescent stage at the Mississippi River Quarantine, La., on a vessel from Cuban and Central American ports.

MEXICO.—Present during the first quarter of the year in the States of Yucatan and Veracruz, with a total of 6 cases and 4 deaths. In Yucatan 2 cases and 1 death occurred at Merida in March. In Veracruz 1 fatal case occurred in January at Tuxpan and 1 in March at Paraje Nuevo, a small settlement near Cordoba on the Veracruz and Pacific Railroad. At the city of Veracruz there were 2 cases and 1 death in February and March, one case having been imported from Paraje Nuevo.

SALVADOR.—Epidemic in the month of January.

GUATEMALA.—One case occurred May 16, at Zacapa, and 3 cases and 1 death were reported under date of May 21, at Gualan. Both Zacapa and Gualan are inland towns, situated a short distance from each other and less than 90 miles from Livingston and Puerto Barrios, at which ports passenger traffic for southern ports in the United States is suspended. On May 29 yellow fever was reported still present at both localities.

CUBA.—One fatal case in January at Santa Clara in the person of a Spaniard who had been a resident of Santa Clara since his arrival in Cuba fourteen months previous to the attack and continuously employed in the same locality. There was no spread of infection. In April a case was brought for treatment to Habana from Nueva Paz, a town of 2,000 inhabitants situated about 45 miles from Habana. A disinfecting and oiling brigade, under an experienced director, was sent from Habana to Nueva Paz to carry out measures for exterminating mosquitoes, the work to be extended to all suspected places in the vicinity. There was no recurrence of the disease at Nueva Paz and no spread at Habana. A case originating at Union de Reyes in Matanzas Province was taken to Habana for treatment May 16, and officially diagnosed May 21. The case occurred in a young Spaniard resident in Cuba eight months. May 21 a second case occurred in Habana Province at San Nicolas. It was officially declared yellow fever by the board of experts sent from Habana. The case terminated fatally May 27. May 25 a case originating at San Nicolás was removed to Habana for treatment and officially diagnosed May 31. A case was confirmed at Habana June 6, imported from Ranchuelo, Santa Clara Province. At San Nicolas 2 cases were reported June 7, and on June 12 1 case was reported, which was officially confirmed June 18.

BARBADOS.—A case at Bridgetown in a person arrived April 16 from Trinidad, where yellow fever was present. The case was removed to Pelican Island Quarantine Station and discharged cured May 7. No spread occurred.

TRINIDAD.—A case which terminated fatally occurred at Port of Spain February 4. The patient had been on the island for a month previous to the attack and the origin of the infection has not been determined. All sanitary precautions were taken by the local authorities and the contacts segregated and held under observation, but a spread of infection took place and, from the date of the outbreak to April 27, 14 cases with 7 deaths occurred. Measures of fumigation and local sanitation were officially ordered by the governor of the island under date of March 22. Two fatal cases were reported during the first two weeks in May, and 2 cases and 1 death from May 18 to 23.

VENEZUELA.—Two cases in January at La Guaira; present ever since, up to June 8.

BRAZIL.—Present in Para, Rio de Janeiro, Nictheroy, Manaos and Pernambuco. In Rio de Janeiro the disease was absent from the first week in December to the first week in February; from February 3 to April 28, 26 cases and 21 deaths occurred; during the first week in May, 5 cases and 3 deaths occurred. At Nictheroy, where no case had occurred previously for more than a year, one case appeared in February. At Manaos there were 13 deaths in March and April and 2 deaths in May. At Pernambuco 1 death occurred in January; at Para 10 deaths in January, 19 cases with 1 death in March, 15 cases with 12 deaths in April, 15 cases with 10 deaths in May, and 1 death during June 1 to 8.

ECUADOR.—Continuously present since the beginning of the year at Guayaquil, with 22 deaths in January, 30 in February, 36 in March, 23 in April, and 3 during the week ended May 4. In February the disease was present at Bucay, Duran and Huigra, localities on the Guayaquil and Quito Railroad, with a total of 4 cases.

PERU.—Two cases imported at Callao by maritime route, the first case January 17 on S. S. *Limari*, the second February 17 on S. S. *Palena*. Both vessels were from Ancon, via Guayaquil. The first case was a member of the crew who did not go ashore at Guayaquil. The case was removed to the lazaretto near Lima. The second case terminated fatally at Callao on the second day after arrival.

Status of Bubonic Plague Throughout the World.—Information published by the Public Health and Marine-Hospital Service in the *Public Health Reports* gives the status of bubonic plague during the current fiscal year up to June 28, throughout the world, as follows:

UNITED STATES.—At San Francisco, a seaman removed May 23 frm the tug *Wizard*, died at the Marine Hospital, May 26.

HAWAII.—From March 29 to May 22, 26 cases with 20 deaths were reported. The outbreak occurred at Aiea and the patients were taken to Honolulu for treatment. One case was reported from Honolulu proper.

WEST INDIES.—Two deaths at Trinidad June 11.

BRAZIL.—Present at Rio de Janeiro, Bahia, Para, Pernambuco, Santos, Nictheroy and Sao Paulo, seaports of Brazil. At Rio de Janeiro, 93 cases with 41 deaths to April 28; at Pernambuco, 10 deaths to March 31; at Bahia, 19 deaths to April 15; at Santos 2 cases, 1 imported, in January and February; a recrudescence at Nictheroy in April.

ARGENTINA.—A few cases at Buenos Ayres in January; present at Rosario in March.

PARAGUAY.—At Concepcion in January, 3 cases; at Asuncion, 5 cases in February.

URUGUAY.—One death in February at Montevideo.

CHILE.—Continuously present at Antofagasta from the first week in January; at Santiago from January 26 to April 20; at Taltal 46 cases with 23 deaths in January and still present May 9; at Valparaiso present from March 5 to May 9.

PERU.—Continuously present since the beginning of the year in many localities, including the important port of Callao and the city of Lima.

GERMANY.—On May 28, 1 case at Groden, near Cuxhaven, imported on the steamship *Wharfedale*, from Buenos Aires.

RUSSIA.—Two cases of laboratory plague in February and March at Cronstadt at the laboratory of the Imperial Institute.

ASIATIC TURKEY.—An outbreak at Djeddah occasioned by the annual pilgrimage to Mecca; 365 cases with 350 deaths from January 8 to May 11. Beirut and Smyrna and the quarantine stations of Camaran and Tor infected.

ARABIA.—Imported at Aden in March by returning pilgrims; no spread.

PERSIA.—Present at Bushire, on the Persian Gulf, May 25. Epidemic on the Island of Bahrein in April.

INDIA.—Epidemically present with an immense number of cases and deaths in many localities and a notable increase in the Punjab.

JAPAN.—Osaka and Matsuyama infected. At Yokohama 3 fatal cases from May 28 to June 3, after an absence of several years. At Sasebo, 1 case May 27. On the Island of Formosa plague is epidemic.

CHINA.—A few cases and deaths reported each month at Hongkong; 1 case, foreign, at Hankau in March; at Niuchwang a serious outbreak lasting two weeks in January and February, with 57 cases and the same number of deaths.

ISLAND OF MAURITIUS.—Extensive epidemic; still present, April 25. Plague has been present in Mauritius for a period of eight years.

CAPE COLONY.—A recurrence at King William's Town; April 22 to May 8, 4 cases and 2 deaths.

EAST AFRICA.—One death at Maunsa; case imported on vessel. Continuously present at Uganda.

EGYPT.—A prevalence of several years' standing exists. Seven provinces are reported infected, with a total of 857 cases and 662 deaths from January 1 to June 6. Of the cities in the Canal District, Alexandria was reported infected to May 23 with 12 cases and 9 deaths; Port Said to March 17, 3 cases and 3 deaths; Ismailia, March 11, 10 cases and 8 deaths; Suez, February 5, 3 cases and 2 deaths.

AUSTRALIA.—Present in New South Wales and Queensland. In the former, Sidney, Kempsey and Townsville are infected; in Queensland the infected localities are Brisbane, Ipswich and Port Douglas.

The Surgical Treatment of Puerperal Infection.—A paper by Latzko before the Vienna Medical Society with the accompanying discussion (*Wiener klin. Wochsch.*), puts clearly before the profession the important question of the curability of puerperal septicemia or pyemia by surgical operation. As Latzko says: "We are standing at the opening of a new path in the surgical treatment of the puerperal process. He who wishes to know whither it leads must not consult merely the compass of theoretic prepossessions as to its direction, but must follow it. I propose to follow it." The surgical procedures which Latzko advocates are chiefly three: Laparotomy

and drainage of the abdominal cavity in puerperal peritonitis, total extirpation of the infected uterus in cases of septic endometritis, and ligation and extirpation of the thrombosed veins in beginning p. ametritis. For the last operation he has devised a new technic that is offered as a possible advance on our present methods.

With regard to the treatment of peritonitis, he says (and some of his colleagues sustain him in this): "Discussion as to the technic of operation for puerperal peritonitis is passible, but as to the indication for it there is no longer room for discussion." To this dictum there is some dissent, but in general it may be said that the prognosis on cases not operated on is so hopeless that any operation that saves only a few is distinctly indicated. The importance of early diagnosis and early operation is as great here as in appendicitis or perforation. A marked difference is to be noted, however, between some of these cases and peritonitis accompanying appendicitis or perforation of some of the hollow viscera in that the puerperal peritonitis appearing late in the septic process may be merely a symptom of an underlying post-peritoneal lymphangitis or cellulitis which operation can not heal. The results of operation for puerperal peritonitis, however early undertaken, can not be as favorable as those for other conditions.

The total extirpation of the uterus for septic endocarditis is a theoretically rational procedure in certain cases where the autopsy shows that the cause of death has been merely the condition of the uterus. The results of the operation have not been encouraging, however. The impossibility of selecting those cases in which the infection is confined to the uterus and of deciding when the case is hopeless without operation necessitates the performance of the operation on many cases in which it is too late to remove the source of infection which is no longer confined to the uterus.

The third operation which Latzko discusses is the ligation or removal of the thrombosed venous plexuses which are presumably the channels by which the infection is reaching the blood. Against the operation of Bumm and of Trendelenburg who simply ligate the veins, theoretic objections are strongly urged. In the first case Bumm operates from the peritoneum and runs the serious risk of infection of that membrane. Trendelenburg avoids this danger by operating extraperitoneally, but both his procedure and that of Trendelenburg are open to the objection that the germs have still the opportunity to reach the blood through the lymphatics as well as by infecting the thrombus formed at the point of ligature. The new procedure of Latzko is designed to obviate these objections. He reaches the infected veins by an incision in the vault of the vagina and working by the aid of the sense of touch separates and removes the infected venous plexus. That the hypogastric artery must not be included in the ligature was shown by the result of one case in which the patient perished from secondary hemorrhage from the ligatured artery, although the occurrence of only one chill after the operation gave reason to hope that the sepsis would be overcome. A very serious obstacle to the success of the operation is the extension of the septic thrombosis to other veins, like the iliac and vena cava, which can not be reached by the operation. It seems impossible at present to determine the point at which intervention is necessary as a life-saving procedure, and equally impossible to say in what patients the disease has extended so far in the veins as to render operation useless. Patients have been known to recover without operation from severe infections in which as many as 70 chills had occurred. The practical results of the operation have not been encouraging. Those of Bumm, Trendelenburg and others from ligature of the veins average over 60 per cent. mortality. Latzko has operated by extirpation on four cases with one recovery.

It seems evident that the hopeless nature of puerperal infection of the severer grade under any of the present methods calls for more strenous measures for its prevention, and the good results of serum therapy would seem to indicate that this method of treatment should be applied early in the treatment of every case. Until surgical procedures attain a greater perfection and the indications for such intervention are more clearly defined, most physicians will hesitate to subject patients to such treatment in the early stages of the infection in which alone is there much prospect of its being successful.

Quarantine and Commerce in the Pacific Arena.—The importance of the Pacific Ocean as a center of commercial activity has long been recognized, and it it is evident that this importance will be increased by the completion of the Panama Canal. Dr. L. E. Cofer Chief Quarantine Officer of the Hawaiian Islands, in a pamphlet reprinted from the *Evening Bulletin*, calls attention to the intimate connections between the commerce of the Pacific and the spread of disease. With the opening of the canal, intercourse between South America and the coasts of Asia and between America and Australia will be increased, and there will be a tendency to an exchange of diseases as well as of goods. The plague, cholera and leprosy of the orient will be carried to the ports of South America, and in return yellow fever and malarial infections will spread to China and Japan. Cofer contends that Hawaii is the natural key to the sanitary situation in this area, and that the Hawaiian ports will form a suitable clearing house for the infected vessels crossing the Pacific on the great commercial routes. The solution of the sanitary problem in the Pacific arena will depend on: 1, The organized study of tropical and quarantinable diseases; 2, the elaboration of maritime quarantine; 3, the amplification of municipal sanitation. Cofer recommends that a Pan-Pacific School of Quarantine and Tropical Diseases be established at Honolulu, Hawaii, and that a uniform course of instruction be given to physicians and others who contemplate a career in municipal sanitation or quarantine work. He also recommends that traveling or circuit quarantine officers be substituted for the present system of home port quarantine inspection in the case of the large ocean carriers.

Suicide by Fire.—An article in the *Revista de Med. y Cir.* for June 10 states that in Cuba during the last five years fifty persons have committed suicide by setting fire to their clothing. The writer, Dr. Cassa, has been able to find only 3 similar cases on record elsewhere. In Cuba the victims were 44 women and 6 men—4 per cent. of the total number of suicides during that period. He ascribes this large number to the sensational illustrated accounts in the lay press of the first case, which seemed to inspire an actual epidemic of this mode of suicide. More than half the victims were of negro blood.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending June 29, 1907:

Snoddy, C. A., asst.-surgeon, granted thirty days' sick leave of absence.

Yost, J. D., asst.-surgeon, granted thirty days' leave of absence.

Banister, J. M., deputy surgeon-general, will proceed from Fort Riley, Kansas, to Omaha, for temporary duty as chief surgeon, Department of the Missouri.

Howard, D. C., surgeon, leave of absence extended twenty-five days.

Gapen, Nelson, Davis, W. T., Morse, C. F., Lambert, S. E., Hansell, H. S., Gregory, J. C., Connor, C. H., Grinsinger, J. W., Pyles, W. L., Smart, W. M., and Purnell, H. S., asst.-surgeons, advanced from the rank of first lieutenant to that of captain, to date from June 24, 1907.

Davidson, W. T., asst.-surgeon, granted fifteen days' leave of absence.

Duncan, L. C., asst.-surgeon, on return to Fort Missoula, Mont., from leave of absence, will proceed at once to join the 3d Battalion, 6th Infantry, in the field en route to Helena, Mont.

Phalen, J. M., asst.-surgeon, ordered to accompany the 2d Battalion, 30th Infantry, to San Francisco; on completion of this duty to return to station, Fort Logan H. Roots, Ark.

Phelan, H. du R., contract surgeon, ordered to transport *Crook* for duty.

Thorp, C. W., contract surgeon, ordered from Washington, D. C., to Fort McIntosh, Texas, for duty.

Pinguard, Joseph, contract surgeon, returned to Fort Leavenworth, Kan., from two months' sick leave of absence.

Wing, Franklin F., dental surgeon, left Fort D. A. Russell, Wyo., on leave of absence for ten days.

Myers, W. H., contract surgeon, ordered from Lynn Grove, Ky., to Fort Crook, Neb., to accompany the 30th Infantry to San Francisco; and to sail thence on first available transport for Philippine service.

Garcia, L. C., contract surgeon, granted an extension of six days to his leave of absence.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 29, 1907.

Marsteller, E. H., surgeon, unexpired portion of sick leave revoked; ordered to the Naval Recruiting Station, Baltimore, July 1.

Mayers, G. M., P. A. surgeon, detached from the *Marietta* and ordered to the *Ohio*.

Reeves, I. S. K., P. A. surgeon, detached from the *Franklin* and ordered to the *Marietta*.

Kennedy, J. T., P. A. surgeon, detached from course of instruction at the Naval Medical School, Washington, D. C., and ordered to Danville, Va., for duty with Recruiting Party No. 3.

Holcomb, R. C., P. A. surgeon, detached from course of instruction at the Naval Medical School, and ordered to the Naval Hospital, Norfolk, Va.

Brown, H. L., asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to the Naval Recruiting Station, Oklahoma, Okla.

Heiner, R. G., asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to duty with Marine Detachment at Camp Harrington, Williamsburg, Va.

Porter, F. E., asst.-surgeon, detached from the *Rhode Island* and ordered to the *Franklin*.

Haines, B. F., acting asst.-surgeon, to Naval Hospital, Philadelphia, Pa.

Casto, D. H., acting asst.-surgeon, detached from the Naval Recruiting Station, Baltimore, and ordered to Washington, D. C., July 1, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

Miller, T., acting asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to the *Rhode Island*.

Donelson, M., acting asst.-surgeon, detached from duty with Naval Recruiting Party No. 3, and ordered to Washington, D. C., July 1, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

Bradley, G. P., Medical Director, retired, detached from the Navy Yard, Portsmouth, N. H., and ordered home.

Dorr, E. Z., medical director, detached from the Navy Yard, Boston, and ordered to the Navy Yard, Portsmouth, and to additional duty in command of the Naval Hospital at that place.

Edgar, J. M., surgeon, detached from the *Wabash* and ordered to the Navy Yard, Boston.

Ohnesorg, K., P. A. surgeon, detached from the Navy Yard, Boston, and ordered to the *Wabash*.

Byrnes, J. C., medical inspector, detached from the Naval Academy and ordered to duty as fleet surgeon, first division, Pacific fleet, on board the *West Virginia*, sailing from San Francisco, about July 25.

Milligan, J. D., pharmacist, detached from the *Fish Hawk*, and, when discharged from treatment at the Naval Hospital, Norfolk, ordered home, and granted sick leave for six weeks.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended June 26, 1907:

Gassaway, Jas. M., surgeon, granted leave of absence for twelve days, from June 24, 1907.

White, J. H., surgeon, granted leave of absence for seven days.

Billings, W. C., P. A. surgeon, granted leave of absence for three days, from June 27, 1907.

Stimson, A. M., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Rucker, W. C., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Ward, W. K., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Trask, J. W., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Robertson, H. McG., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Wells, Ch. W., chief Division Hygienic Laboratory, directed to visit the states of North Carolina, South Carolina, Georgia, Alabama and Mississippi, for special temporary duty, on completion of which to rejoin his station.

Gleason, C. M., acting asst.-surgeon, granted leave of absence for twelve days, from June 18, 1907.

Knowles, Ralph, acting asst.-surgeon, granted leave of absence for seventeen days, from July 7, 1907.

Rodman, J. C., acting asst.-surgeon, granted leave of absence for three days, from June 16, 1907.

Rowles, J. A., acting asst.-surgeon, granted leave of absence for ten days, from July 15, 1907.

Walker, R. T., acting asst.-surgeon, granted leave of absence for ten days, from July 8, 1907.

Wetmore, W. O., acting asst.-surgeon, granted leave o. absence for eight days, on account of sickness, from June 6, 1907.

Wilson, J. G., acting asst.-surgeon, granted leave of absence for seventeen days, from July 21, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Publ. Health and Marine-Hospital Service, during the week ended June 28, 1907:

SMALLPOX—UNITED STATES.

Illinois: Belleville, June 9-15, 1 case; Galesburg, 1 case; Joliet, May 1-June 15, 5 cases; Peoria, June 8-15, 7 cases; Springfield, June 13-20, 2 cases.

Kansas: Kansas City, June 9-15, 1 case; Topeka, 2 cases.

Kentucky: Covington, June 15-22, 6 cases; Louisville, June 13-20, 15 cases.

Louisiana: New Orleans, June 8-15, 6 cases.

Maryland: Baltimore, June 15-22, 1 case.

Massachusetts: Lawrence, June 9-15, 4 cases.

Missouri: St. Louis, June 9-15, 4 cases.

Ohio: Cincinnati June 14-21, 1 case; Cleveland, June 7-14, 1 case.

Texas: San Antonio, May 25-June 1, 3 cases.

Utah: General, Four counties, May 1-31, 22 cases.

Washington: Spokane, June 9-15, 9 cases, imported.

Wisconsin: Milwaukee, June 9-15, 10 cases.

SMALLPOX—FOREIGN.

Africa: Algiers, May 1-31, 8 deaths.

Argentina: Rosario, May 13-20, 12 cases, 17 deaths.

Austria: Trieste, May 18-25, 1 death.

Brazil: Manaos, May 25-June 1, 1 death; Pera, June 1-8, 6 cases, 2 deaths; Pernambuco, April 15-30, 56 deaths; Rio de Janeiro, May 16-25, 7 cases, 1 death.

Canada: Halifax, June 15-22, 7 cases.

China: Amoy, April 24-May 5, present; Hankau, May 11, 1 case; Hongkong, April 27-May 11, 27 cases, 23 deaths; Shanghai, April 27-May 11, 4 foreign deaths, 45 natives.

Columbia: Santa Marta, June 1, 1 case.

Egypt: Cairo, May 13-20, 2 cases.

Germany: General, June 1-8, 10 cases; Bremen, May 4-11, 2 cases; May 18-25, 1 case.

Great Britain: Southampton, June 1-8, 2 cases.

India: Bombay, May 21-28, 1 death; Calcutta, May 11-18, 34 deaths; Madras, May 4-24, 2 deaths.

Hawaii: Honolulu, June 28, 1 case (imported from S. S. *Kumeric*, from Madeira.

Italy: General, May 31-June 6, 32 cases; Florence, June 2-9, 1 case; Naples, vicinity, June 2, 4 cases, 1 death.

Mexico: Aguas Calientes, June 9-15, 9 deaths; City of Mexico, May 18-June 1, 6 deaths.

Russia: Moscow, May 18-25, 7 cases, 3 deaths; Odessa, May 25-June 1, 4 cases, 1 death; Riga, May 25-June 1, 11 cases.

Siberia: Vladivostock, April 27-May 5, 2 cases.

Spain: Valencia, June 2-9, 7 cases, 2 deaths.

Straits Settlements: Singapore, April 27-May 4, 1 death.

Turkey: Bagdad, May 5-11, present; Bassorah, May 11-25; present.

Venezuela: La Guaira, May 25-June 8, present.

YELLOW FEVER.

Brazil: Para, June 1-8, 1 case, 1 death; Rio de Janeiro, May 12-26, 4 cases, 4 deaths.

CHOLERA.

India: Bombay, May 11-18, 1 death; Calcutta, 56 deaths; Rangoon, 2 deaths.

PLAGUE.

Africa: Cape Colony, King William's Town, May 4-11, 2 cases.

Brazil: Para, June 1-8, 10 deaths; Rio de Janeiro, May 12-19, 2 cases.

China: Hongkong, April 27-May 11, 19 cases, 14 deaths.

Egypt: Alexandria, May 25-30, 1 death; Assiout Province, 8 cases, 8 deaths; Beni-Souef Province, 2 cases, 1 death; Girgeh Province, 1 case, 1 death; Keneh Province, 15 cases, 15 deaths; Minieh Province, 8 cases, 3 deaths.

India: General, April 27-May 4, 89,777 cases, 77,776 deaths; Bombay, May 21-28, 95 deaths; Calcutta, May 11-18, 203 deaths; Rangoon, 34 deaths.

Japan: Osaka, May 20-27, present; Sasebo, 1 case; Yokohama, May 28-June 3, 3 cases, 3 deaths.

Persia: Bushire, May 25, present.

Peru: Lima, May 10, 2 cases, 1 death; Tambo, 1 case; Trujillo, 2 cases, 1 death.

Straits Settlements: Singapore, May 11-18, 2 deaths.

Section Discussions

DIGESTIVE DISORDERS IN PHTHISIS.

BY DR. JAMES B. ARNEILL, DENVER.

(*Concluded from page 10.*)

DISCUSSION.

DR. WOODS HUTCHINSON, New York, said that this paper emphasized the very important point that there is infinitely more in pulmonary tuberculosis than can be discovered by the stethoscope. In his experience, while a precise diagnosis depends on what is discovered in the chest, the most important information as to prognosis comes from outside the lungs, in the heart and in the abdomen. He believes that too much attention is given to the tubercle bacilli for diagnosis. By the time it is discovered in some cases, we may have a post-mortem and make sure of our diagnosis. There are conditions to be detected in the heart and abdomen to aid. In the majority of the cases the heart will be found unconcerned, and a tendency to enteroptosis and gastroptosis, gastric dilatation and distension of the colon. Dr. Hutchinson thinks that one of the virtues of the overfeeding treatment lies in the mechanical effect, o the bowels of the large amount of nutriment introduced. A patient who has been constipated for

months will practically have his bowels regulated merely by the mass of material placed in the stomach which passes to the bowel. Dr. Arneill quoted one of Dr. Hutchinson's statements that tall individuals are more susceptible to tuberculosis, a thing that has been proved. In the British army men were recruited, to be sent to the colonies, who were over six feet in height. Like all giants, they were not what they were cracked up to be. The artillery, on the other hand, recruited from the line, and one-half were under the standard required by the rest of the army. The death rate was just double among the giants what it was for the others. These overgrown individuals used too much of their strength in the process of growing.

Dr. Judson Daland, Philadelphia, said that all agree in the importance of a close study of the relation of the gastro-intestinal canal and tuberculosis. In regard to the diagnosis of enteroptosis and gastroptosis, he believed the *x*-ray is of use in diagnosing not only the extent of the dislocation or displacement, but also whether the abdominal supporter is doing the work expected of it. Another point of great importance in the treatment of such cases is the use of the graded systematic course of exercises done to improve and strengthen the abdominal muscles.

Dr. Milton J. Lichty, Cleveland, regretted that no statistics were given regarding the frequency of gastrointestinal disturbances in tuberculosis, as well as the frequency of tuberculosis complicating gastrointestinal diseases. From 5 per cent. to 10 per cent. of the patients seen in his office presenting symptoms of indigestion are affected with tuberculosis. One can easily see that there is a relation between the two diseases. He is reminded that tuberculosis has very early symptoms of gastrointestinal disturbances, and one may safely say that gastrointestinal disturbances are a cause of tuberculosis. Those physicians who have the opportunity of seeing a number of these cases in sanatoria could get valuable figures of this condition if they would resort to the use of the stomach tube in a routine way. With patients in the first degree of tuberculosis this procedure should be carried out whenever possible, though he would not recommend it in the last stages of tuberculosis. Such statistics might be of value when carefully compiled. In his own experience he finds that there is about the same proportion of acidities, hypoacidity and hyperacidity in tuberculosis as in any other class of associated diseases. In order to feed tuberculous patients properly he believed it necessary for the physician to know the condition of the secretion of the gastric juice. He recalled the condition of a patient, tall and slender, who came to him with symptoms of hyperchlorhydria, apparently well. When the patient developed tuberculosis later, feeding was comparatively easy. The same is true in hypochlorhydria. He had had several patients whom he treated for a marked hypoacidity for some years. They had malnutrition and they developed tuberculosis while under his observation, possibly on account of the feeding, which in those cases was rather difficult.

Dr. J. A. Witherspoon, Nashville, Tenn., said that a diagnosis depends largely on the findings in the chest. He finds great difficulty in feeding these patients, especially if they have hypochlorhydria; in such cases the prognosis is invariably graver than when they have hyperchlorhydria. In tuberculosis Dr. Witherspoon has for years been in the habit of first making an analysis of the stomach contents as an aid in the treatment, the object being to know how to feed the patients. Much depends on the nutrition and the patient's power to improve that nutrition. If one has a patient who day after day shows a deficiency in the hydrochloric acid, and deficient motor activity, the prognosis will be worse than if the opposite condition prevails.

Dr. James Rae Arneill, Denver, said that phthisio-therapists residing at low altitudes deny the specific value of high altitude in the treatment of this disease, maintaining that equally good results can be obtained at low altitude. Physicians living in moderately high altitudes are equally positive that the tuberculous patient does better at moderately high altitudes, other things being equal. Both classes of physicians are influenced by empiricism and clinical experience, not by exact scientific data. The general practitioner, who refers most of the cases, is in a quandary. Dr. Arneill referred to the work of four German physiologists, who attempted to throw some light on this problem by exact scientific investigations. They ascended the Alps, accompanied by a party of soldiers, on whom scientific observations were made. Laboratory apparatus and various instruments of precision were taken along, thus enabling the scientists to make as accurate experiments in the mountains as at home. Their conclusions were that in high altitudes metabolism, especially during physical exercise, is exaggerated; the laying on of proteid material is favored. The activity of the heart is stimulated, the breathing is strengthened, both of them through the medium of the nervous system operating on the heart, and respiratory mechanism. Blood formation is increased, proved by the fact that the number of embryonic red cells, found in the bone marrow on the mountains, is greatly in excess of that usually at sea level, and that the total amount of hemoglobin in the blood of animals, sojourning or born at high altitudes, is greater to the extent of 20 to 30 per cent. than in similar animals studied on the plains. The skin also is trained to more energetic activity. These scientifically proved facts certainly tend to confirm the views of many well-trained clinicians, that altitude has some specific virtues in the treatment of tuberculosis. Interesting and valuable observations—would be the determination of the tuberculo-opsonic indices of patients—before and after sojourning in moderately high altitudes.

DOES THE OPACITY OF THE INCIPIENT CATARACT EVER REGAIN TRANSPARENCY?

BY DR. LEARTUS CONNOR, DETROIT.

(*Concluded from page 13.*)

DISCUSSION.

Dr. G. Oram Ring, Philadelphia, said that Dr. Connor's paper will furnish an important stimulus to the ophthalmologists in their endeavor to arrive at definite conclusions as to which cases give promise of absorbing and the best method by which this result can be achieved.

The treatment of cases of the so-called epithelial chorioiditis of de Schweinitz by placing before the eyes the proper correcting lenses, with the induction of cycloplegia, and with proper alterative medication has almost uniformly markedly improved vision for distance and near, but it has been felt that this betterment was wrought not by absorption of opaque striæ, but chiefly by the removal of chorioidal disease, secondary vitreous haze, associated with the clearing of the lens. Reference should be made, Dr. Ring said, to the work of Dr. Walter L. Pyle, in two papers, the latter presented at the 1902 session of the Section, and the former published in the *Philadelphia Med. Jour.*, March, 1900, in which he reviewed the subject to date, and classified the reported cases of absorption of cataract as follows:

1. Cases in which there is absorption after spontaneous rupture of the anterior or posterior capsule.
2. Cases in which there is spontaneous dislocation of the cataractous lens.
3. Cases in which there is intracapsular resorption of the opaque cortex and sinking of the nucleus below the axis of vision, after degenerative changes in Morganian cataract without rupture of the capsule or dislocation of the lens.
4. Cases in which there is complete spontaneous resorption of both nucleus and cortex without reported history of ruptured capsule, dislocation or degenerative changes of the Morganian type.
5. Cases of spontaneous disappearance of incipient cataract without degenerative changes or marked difference in the refraction.

Dr. Ring referred to the literature on this subject and said that the striæ of incipient cataract do regain transparency, and quoted reported cases in proof of his statement. He also reported the following case from his own practice:

Mrs. A. C., aged 35, consulted him in December, 1894. Vision had failed very rapidly for 72 hours before her visit, but curious spots dancing before the eyes had been noted for four weeks previously. She had sore throat and falling of the hair. No gross abnormality of muscle movement was

present. A pronounced acute neuro-chorioretinitis was present, the summit of each disc being swollen to about 4 diopters. Vision O. D. The patient counted fingers. O. D. 5/45. Large scotoma down and out, was present in O. D., with marked contraction of the visual field, and a paracentral scotoma in O. S., not quite reaching to the fixation point. In this eye a series of eight striæ were present in the anterior cortex, with fainter areas in the posterior cortex. About ten days later the patient was seen in consultation by Dr. William F. Norris, who, because of the very profound nutritional change, evidenced by the condition of the fundus, as well as by the presence of the lenticular striæ, regarded the prognosis as grave and dubious. The case was clearly syphilitic, and under mercurial emunctions, pilocarpin and later potassium iodid, the lens became transparent, the fundus changes disappeared and vision was restored to 20/25 in O. D. and to normal in O. S., and has so remained.

Dr. Ring stated his conviction that each case of incipient lens opacity should be studied if possible with the aid of an expert clinician, that the urinalysis should be thorough and systematic, and the blood examinations complete. The heart and circulation should be carefully studied for the beginning evidences of arteriosclerosis or other circulatory disease, and the gastric intestinal tract carefully studied for evidences of autointoxication. He called attention to the fact that except the one case of diabetes, each of Dr. Connor's cases occurred in women over 50, that each was subject to intestinal disorders, possibly association with autointoxication; that they were fleshy, flabby women of markedly nervous type, and that at least two were chronic rheumatic subjects. Syphilis, Bright's disease, diabetes and other organic conditions each will afford its special indications for treatment. When no study with a clinician is possible, the oculist can do much by instituting himself the type of examinations suggested above, and by a proper modification of the diet, the restriction of meat and starchy foods to the minimum, exercise in the open air, full, deep breathing and massage. Locally, careful and repeated refraction, accompanied with cycloplegia and alterative medication especially to improve the chorioid, vitreous and lens, are absolutely essential. Local inflammation must be looked after. Heat, dionin and local massage have in some instances proved of value. There is no one remedy, Dr. Ring said, to which we can certainly turn to remove the opacification. We can assist in accomplishing our purpose by a careful study of and an attempt to remove conditions that tend to influence nutrition unfavorably.

DR. WILLIS O. NANCE, Chicago, to the list of cases recorded by Dr. Connor, added that of Mrs. S., aged 52, who consulted him in 1898 on account of the twitching of some of the muscles of the face and inability to read or sew comfortably. She had been wearing glasses for about ten years and had never been examined by an oculist. She was extremely nervous, but except for this symptom was apparently in good health. Incidentally, she possessed a thyroid tumor of considerable size. Examination showed hypermetropic astigmatism of a low degree, with presbyopia and several well-marked striæ in the lens of one eye. Vision 20/80, improved to 20/40 by correction. The examination was particularly thorough, and a careful drawing of the lenticular condition was recorded. Six years later, to Dr. Nance's astonishment, the lens was found to have completely cleared and vision with the same distance correction given at first examination improved to 20/30. The goiter during the interim had disappeared without treatment. There was no history of syphilis, nor was there at any time any indication of Bright's disease or of tuberculosis. This case, so far as his observation has extended, is the only one in which opacity of incipient cataract has been noted to regain transparency.

DR. WALTER H. SNYDER, Toledo, said that since answering Dr. Connor's circular letter he has seen two cases which illustrate the point exactly:

Mrs. R., aged 70; O. D. complete senile cataract; good light perception; O. S. 20/70; transparent striæ and a general cloudiness. After five weeks' treatment vision equaled 20/30.

Mrs. W., aged 64; O. D. complete senile cataract. O. S. 20/100; after four weeks' treatment 20/20.

Both of these cases are of a type in which beginning opacity of the lens is frequently found and which most frequently clear up or can be held stationary. There is high arterial tension; the patients in these cases had 185 mm. Riva Rocci. These patients are constipated, in that though the bowels moved every day, the time of retention of bowel contents is too long, and there is consequent absorption of pressure raising toxins, the ingestion of sodium chlorid is much too great and the diet generally contains too many internal organs, such as liver, kidney, sweetbreads, etc. The retina has an indistinct appearance, seemingly edematous in a slight degree, and the periphery shows the beginning changes of arteriosclerosis. Dr. Snyder has seen such cases drift into chronic interstitial nephritis. His treatment, which has been more successful since using dionin, is to lessen blood pressure, prevent absorption of toxins, stimulate elimination and apply dionin locally in powder form. Hot applications are made four times daily for five minutes, followed by eye work. So many details are attended to that it is impossible to say which is of greatest importance, but he feels that since using the dionin he has been able to stimulate the lymph channels of the anterior segment of the eye more satisfactorily than ever before, especially if the tension is slightly raised in the globe, when the dionin acts more efficiently. He believes that all near work should be prohibited, and that any error of refraction for distance should be accurately corrected. He has under observation cases in which for twelve years the condition has been stationary in one eye, under this treatment, while the other eye presents the typical picture of complete senile opacity, and he is certain that the other will follow it if not prevented by the care given to the general health.

DR. JOHN E. WEEKS, New York, said that for the last twenty years he has made sketches of every case of striation of the lens, or lenticular opacity, that has presented itself in his private practice, and he has also endeavored to arrest the development of the cataract. In this discussion the cases that have been described as most favorable for the clearing up of opacities of the lens are those that are due to some injury or some disturbance of nutrition, or to disease of the interior of the eye. Changes that take place in the lens vary. When there is senile cataract, when the health is good, it is found that the lens is shrinking, and the striæ appear, because the central portion of the lens shrinks more rapidly than the cortical portion. In cases in which the condition is not due to any general or local disease, the disappearance of the striæ is extremely rare. In the other cases, the striæ are not due so much to the cleavage between the lamellæ of the lens because of shrinkage, as to imbibition and subsequently to the presence of granular detritus between the lamellæ, the lens itself becoming somewhat swollen. These are similar to the cases in which striæ are found after injury to the lens and which may clear up. Dr. Weeks thinks that these facts give a clue as to which variety of opacities of the lens may clear up and which may be judged to be permanent. He believes that systemic treatment is of great importance, and also that something may be done toward stimulating the nutrition of the anterior segment of the globe by local treatment. He has advised hot applications, made perhaps at night by bathing with hot saline solution, and has used stimulating colleria; one that he is in the habit of prescribing is glycerine and boracic-acid solution. He has kept records of these cases for twenty years, and has not a few cases in which the striæ have not advanced for five or ten years. He has seen a very few cases in which the striæ have decreased, but he has seen none in which an entire disappearance has been positively determined.

DR. R. S. LAMB, Washington, said that the cases that clear up are mostly cases of angiosclerosis, with resulting chorioidoretinitis, and he thinks that a good many patients have incipient angiosclerosis, which would be brought out by a little more careful examination of the patient in a general manner, in addition to the local examination. He finds the vision of

these patients generally reduced to from 20/30 to 20/100, and that with glasses it is unimproved. In addition to the hot applications which he uses at least three times a day, and sometimes oftener, he uses the subconjunctival salt injections, and has seen a few striæ clear up.

DR. HERMAN KNAPP, New York City, said that not rarely a partial cataract is absorbed. That part between the center and periphery becomes cataractous and then may clear up except for a fine streak, like that made by a pen, in the clear substance of the lens. Dr. Knapp said that he has seen such cases and mentioned one which was typical. A splinter of iron went into the eye. A white-gray streak parallel with the optic axis was distinct. He drew the splinter out easily with a Haab magnet. There was no reaction. It was remarkable that the opacity in the temporal half of the lens fully disappeared, but the anteroposterior streak remained. Otherwise the eye was healthy. The vision was normal so long as Dr. Knapp had the patient under observation.

DR. JOHN CHASE, Denver, said that about ten years ago a man, aged 45, in good health, of excellent habits, came into his office. Dr. Chase refracted his eyes. Two years later the man came again complaining of a disturbance of vision, and on examination I found well-marked striæ in both eyes. Some time later he wrote that he had placed himself under the care of a man who claimed to cure cataract. Two years later he returned and the striæ were gone. Just before leaving for Atlantic City, the man came into Dr. Chase's office and the striæ had returned in both eyes.

PROF. CARL HESS, Würzburg, Germany, said that the etiology of these striæ can be studied experimentally in rabbits by feeding the animals with naphthalin, and in the first twenty-four hours a good many of these striæ can be found in the lens, while if the feeding is not continued the striæ disappear completely in about eight days. This seems to be analogous to what occurs in the human eye. This condition can be studied anatomically. The first thing that happens is the destruction of the epithelial layer of the lens so that the liquid around it can get into the lens itself. The normal epithelium protects the lens, but when this epithelium is destroyed the liquid gets in and then we have a difference of the refractive index because of this fluid between the lenticular layers. When one ceases feeding the rabbits and the epithelial layer is restored, which happens frequently, the whole epithelial layer becoming normal again, no liquid can enter the lens, and it is easy to explain how these striæ disappear completely. There are reasons to believe that these same changes take place in the human eye.

DR. LEARTUS CONNOR, Detroit, said that the single point he desired to make in the paper is that the striæ of incipient cataract do sometimes clear up. In his opinion, the evidence is conclusive that lenticular striæ disappear or are modified. He expressed pleasure that so many members of the Section agreed with him, and spoke of the benefit to patients if ophthalmologists will hold out some hope instead of telling them that nothing can be done except to wait for operation. Fraudulent institutions promising cure of cataract will be driven out of business.

LOSS OF VITREOUS HUMOR IN CATARACT EXTRACTION.

BY DR. J. M. RAY, LOUISVILLE, KY.

(*Concluded from page 15.*)

DISCUSSION.

DR. SAMUEL THEOBALD, Baltimore, thinks that all ophthalmologists agree that loss of vitreous is an accident to be avoided. There seem to be four factors that have most to do with producing this misadventure: One is the awkwardness of the operator; about this nothing need be said. The three other factors are: First, fluidity of the vitreous. When this conditions exists the likelihood of the accident occurring is much greater. Second, the behavior of the patient. In Baltimore there are a great many negroes, and they are almost without exception intractable patients. The orbicularis muscle of the negro seems to have twice the strength of that of the white individual, and he has little or no control over it. This is a difficult thing to contend with. The third factor is the speculum. There is a great difference in the amount of pressure which the different specula exert on the eye, and I think this has an important bearing on the question of loss of vitreous. The old-fashioned spring speculum exerted an undue amount of pressure. The speculum which Dr. Theobald has used for years in this respect, and which he believes to be the best, is the self-locking speculum devised by the late Dr. Russell Murdoch of Baltimore.

DR. HIRAM WOODS, Baltimore, said that in his experience the loss of clear normal vitreous is of greater significance than of fluid vitreous. The latter is usually the result of preexistent chorioiditis, and failure to restore useful vision is generally due to this underlying lesion. It is different when the vitreous comes out as a distinct bead. It is cut off and appears again. Rough handling, movement of the patient or pressure of the speculum are generally responsible. This loss of clear normal vitreous, he believes, is often responsible for postoperative infection, prolonged convalescence and, possibly, leads to subsequent intraocular degeneration. Fluid vitreous at operation makes him dread rather the discovery of old destructive fundal lesions, which will materially lessen visual acuity than the postoperative dangers mentioned.

DR. A. R. BAKER, Cleveland, stated that he does not like to have loss of vitreous, and never sleeps comfortably after such an accident. He has found that loss of vitreous is frequently due to the speculum or to an awkward assistant. For a number of years he has been making most of his extractions without a speculum, simply grasping the tendon of the superior rectus, the forceps holding the lid up, and cutting toward the forceps. It is surprising how easily this can be done, and it does away with the necessity for an assistant. The old Italian operators used this method years ago, and Dr. Baker believes that it is deserving of more frequent use.

DR. CHARLES A OLIVER, Philadelphia, agreed with Dr. Theobald regarding the value of the Murdoch speculum; he uses it in preference to all others in suitable cases. Generally, he does not use a speculum in cataract operations, believing that an assistant and use of an elevator is a better plan. For years he has taught his students that the loss of the vitreous humor is one of the most distressing accidents in cataract extractions. Dr. Oliver never considers what is known as operative success, only final success. An operation can not be considered complete until the lapse of some months or years. It is in cases of ordinary cataract with loss of normal vitreous that disastrous results occur later. In other words, the true vitreous humor is just as much an organized body as the lens. There is no such thing as fluid vitreous. The condition usually so designated is simply a replacing of the normal vitreous by lymph in the vitreous chamber. No matter how minor the accident in the beginning of the operation may be, secondary inflammation and degeneration with all their disastrous consequences are nearly always sure to take place.

DR. R. S. LAMB, Washington, mentioned two points by which one may overcome these difficulties, mentioned by Dr. Theobald, with the negro. One is to remove the speculum immediately after the incision. Dr. Lamb always puts in the speculum to make the incision, but removes it to get rid of the tension on the orbicularis. The second point is to make the incision entirely in the cornea.

DR. D. W. GREENE, Dayton, Ohio, said that an operator of average skill following regular methods of extraction should not lose vitreous in 5 per cent. of his cases, taking them as they come. When loss does occur it will usually be due to one of two causes: rough handling of the eye (imperfect technic), the vitreous being of normal consistence, or with fluidity of the vitreous the technic may or may not be faulty, yet the loss occurs. The loss of a small or even a moderate amount of vitreous, while not to be desired, is perhaps not specially dangerous to the future of an eye, so far as we can judge without special statistics covering the point. The

vitreous is never reproduced, but the aqueous rapidly supplies its place and an apparently normal condition results. Dr. Greene has not seen a case of detachment of the retina that could be attributed to loss of vitreous. Having had an undesirable experience in 22 cases of extraction within the capsule and having lost vitreous in 41 per cent., and having had 3 cases of glaucoma during convalescence and one coming on more than a year after the operation (clearly traceable to displacement upward and closure of the pupil), having watched some of these cases for more than a year, and having seen the reactive processes to which such eyes are subject, he has come to regard loss of vitreous (in any reasonable amount) of far less significance and danger to the future of an operated eye than entanglements and incarcerations of iris which are the direct and unpreventable results of such a loss. The danger of the loss of the eye from primary infection of the vitreous is not great; the danger of loss from detachment of the retina is probably not greater, therefore some such explanation as that offered above is necessary to explain the complications that follow vitreous loss. He stated that in his 50 per cent. of vitreous loss or presentation after the Smith (Indian) method, the vitreous was not of normal consistence in a single case. Being a non-vascular structure (after fetal life), the vitreous is not subject to inflammation in the generally accepted meaning of the term. The changes that occur—fluidity, opacity, etc.—are degenerative and secondary to disease of the uvea and retina, and these in their turn are caused, in the majority of cases, by diffuse disease of the blood vessels, arteriosclerosis, or better, perhaps, arteriocapillary fibrosis.

DR. L. WEBSTER FOX, Philadelphia, said that the surgeon of to-day looks on the loss of vitreous with great seriousness and aims to prevent it at all hazards. Some of the older authorities did not take the loss of vitreous with much distrust. In his opinion the operator should aim to deliver the lens without loss of vitreous. He has had a few cases in which at least one-fourth of the vitreous was lost, but instead of allowing the globe to remain flaccid, which this loss of vitreous would entail, he immediately filled the eyeball with tepid saline solution and good results have ensued. For a trifling loss of vitreous no heed need be paid other than a careful snipping of the bead from the lips of the wound and a gentle backward [illegible]ing of the edges of the incision. Any disturbance in the [illegible]a of the visual apparatus disturbs the "histologic make[illegible] the normal solution," and Dr. Fox is certain that an excessive loss of vitreous lowers the visual acuity, as well as the resisting forces against subsequent degeneration of the eye itself.

DR. W. ZENTMAYER, Philadelphia, declared that in his experience the loss of vitreous humor in any considerable amount has proven a serious complication. Primarily it leads to the curtailment of an important step of the operation—the replacement of the pillars of the iris, the smoothing out of the conjunctival flap and other steps in the toilet. The loss of a decided amount has been followed, usually, by an iritis or an iridocyclitis, which has kept the eye irritable, prolonged convalescence and rendered capsulotomy necessary and difficult to perform. Undoubtedly, in some of these cases the loss of vitreous indicated a diseased eye, and the resulting postoperative inflammation might have followed, even though the operation had been without complications. He is confident, however, that in any event it is an error to look on this occurence as other than a serious misfortune, notwithstanding that we often hear it stated that the loss of a little vitreous is a good thing.

DR. FRANCIS VALK, New York, declared that this question of loss of vitreous depends on the way it is looked at. It was his good fortune in his early work to see Dr. Agnew operate for cataract and in his operations Dr. Agnew simply put the speculum in and left it there until the operation was finished, no matter what complication might occur. Dr. Valk has followed out the same plan, because he has reached the time when the loss of vitreous does not frighten him. It can not be prevented, and the only thing is to know what to do when it does happen. If a small quantity is lost Dr. Valk judges what is best to be done by the condition of the cornea and eyeball; if the lips of the wound are nicely together he does nothing; only he is careful not to put any pressure on the eye. If, on the other hand, there is collapse of the cornea, or of the anterior portion of the eyeball, then he uses injections of normal salt solution to bring the eyeball up to its normal size, puts on the bandage, and usually has a fairly good result. An eyeball in which there is a cataract is not a healthy eye. In his experience it has seemed that some of his best cases have been those in which there was a slight loss of vitreous. Recently he operated on a man for double cataract, and in both eyes there was slight loss of vitreous, but the last time he saw the man he had good vision. In making pressure to remove the lens, if the operator will make it constant, steady and in one direction, he will have no trouble and seldom a loss of vitreous.

DR. J. M. RAY, Louisville, said that he agrees with those who believe that while the influence of loss of vitreous on the primary result is not disastrous, yet the secondary results are of much greater importance than primary infections. Fluidity of the vitreous is unquestionably a factor. Arlt has stated that when the vitreous is fluid its loss is not so important as when it is firm, due to the fact that when firm vitreous protrudes we cut it off, and a little more takes it place, so that when the eye is bandaged we have no assurance that there is not a bit of vitreous between the lips of the wound. He believes that after the section is finished, and certainly after the capsulotomy, there will be less loss of vitreous if the speculum is removed. He also thinks that the character of the speculum used is of great importance. On one occasion he lost a large quantity of fluid vitreous; he filled the eye with normal salt solution, and it did well apparently for awhile, but a short time after the patient developed an iridocyclitis that destroyed the eye. Dr. Ray thinks that when the eye is filled with normal salt solution if the case is watched for awhile it will be found that it sooner or later undergoes degeneration.

NEUROFIBROMA OF THE ORBIT.

BY DR. W. I. PARKER, DETROIT.

(*Concluded from page 19.*)

DISCUSSION.

DR. EDWARD JACKSON, Denver, said that the term neurofibroma has been used so loosely that its significance is uncertain and indefinite. Restricting the term neuroma to a tumor in which there is an actual abnormal new formation of nerve elements, and designating as false neuroma, or pseudo-neuroma, any tumor which consists of other elements, in which are embedded previously formed nerve fibers from the nerve trunk in which the tumor had its origin, the mass of nerve tumors in the region of the eye probably belong to this latter class. It is possible that Dr. Parker's case, and the two previously reported cases he cited, should be classed as true neuromas, of which the tumors developed on the ends of nerves in the stump after amputation of a limb, are the most common example. The so-called plexiform neuromas, more frequently found in the region of the eye, appear to be of the false neuroma type, the proliferation of the connective tissue elements of the nerve trunk forming a tumor in which the original nerve fibrils are embedded. Contrary to what was observed in Dr. Parker's case, these fibrils generally show signs of degeneration. The cases to which Dr. Parker calls attention seem to differ from plexiform neuroma, chiefly in the sharp limitation of the process resulting in the formation of a distinctly limited tumor as opposed to the extended network of the plexiform neuroma. The nodule, which he removed from the eyebrow, however, seems to illustrate the tendency of the neuromata to appear as multiple growths. It should be remembered that neurofibromatous growths are extremely rare within the cranium, although a tendency to their development elsewhere throughout the body has been noted in cases of idiocy and cretinism. In a good many recorded cases a false neuroma has developed into a sarcoma.

In a number of reported cases hydrophthalmos has been associated with plexiform neuroma. The possibility of association of hydrophthalmos with a growth such as Dr. Parker has reported, should be borne in mind. Apparently, the tendency to neurofibromatosis is congenital, although some of these growths have not attracted attention until middle life. In early childhood, when hyrophthalmos is usually seen, such a growth, if it existed, might be undiscoverable.

Dr. Jackson has never done Krönlein's operation except on the cadaver. He recognizes that there is a distinct field for it; but the number of cases that might properly be submitted to it is extremely small. Many malignant tumors of the orbit should not be operated on at all and in most of those the orbit should be completely emptied of its contents. Reports of cases of this kind, in which the patients were subjected to osteoplastic resection, instead are to be found in the literature of the past year. For probably non-malignant tumors, like that in Dr. Parker's case, Krönlein's operation is to be considered far superior to evisceration of the orbit. But even among these its use should be restricted to cases in which operation on the soft parts would not remove the tumor without sacrificing a useful eye. To do an osteoplastic resection for the removal of a malignant tumor of the orbit, or to save a hopelessly blind eye, as had been done in some of the reported cases, is hardly justifiable. Even in the cases for which the operation is especially indicated, the result is not always so satisfactory as in Dr. Parker's case. Cross says of one of his successful cases: "There is ptosis and the eyelids can not be opened; the power of all the ocular muscles is weakened—that of the external rectus is entirely lost. The eyeball lies toward the nose and can not be used, though there is good sight in it. The appearance of the patient is less satisfactory than is usually presented by a glass eye." Such an eye possessing useful vision is, of course, worth preserving, if possible without risk to life. But it can sometimes be as well preserved by an operation that does not involve the wall of the orbit. Tumors lying chiefly to the inner side of the cone of muscles may usually be reached, at least equally well, from in front; and in some orbits there is space enough to the outer side of the eyeball to make a careful exploration of that region, or to remove a cyst or solid tumor of moderate size without resecting the orbital wall. The width of the orbital opening varies greatly in different persons, and only when it is comparatively narrow, or the tumor is situated very deeply within the orbit, and, as in this case, malignancy can be excluded, does Krönlein's operation seem necessary. It is desirable that the details regarding each patient thus operated on, especially the subsequent history, should be placed on record. In some of the cases heretofore reported the nature of the growth has not been mentioned; and others, probably malignant in character, have been reported within a few weeks after the operation.

Perhaps the most important lesson taught by such a case is that non-malignant tumors of the orbit do occur, of which the patient can be thus relieved without sacrifice of a useful eye, and without serious risk to life. Tumors of this particular variety are extremely rare, but perhaps not so rare as the literature would seem to indicate. Their macroscopic resemblance to fatty tumors would cause them to be so classed if no careful microscopic examination of the growth were made.

DR. HERMAN KNAPP, New York, stated that he had plexiform neuroma which was operated on three or four years ago return. It was situated in the orbit. There was no relapse for eighteen months and he thought it was a good result, but before he went away there was a return and there will have to be another operation. There is nothing else but to get rid of them as well as we can. So far as he knows in the literature there is no report of perfect recovery. The case must be observed. There are small relapses; if these are removed the patient will not die from this disease.

DR. HARRY FRIEDENWALD, Baltimore, said that several years ago he reported a case of neuroma involving the upper eyelid and orbit. The immediate result of operation was good and the appearance of the eye remained good for some time afterward. Then there was a return of the growth, and now after several years the lid is about as large as before the operation. This was a diffuse growth and not a circumscribed one like that reported by Dr. Parker.

DR. CHARLES A. OLIVER, Philadelphia, said that he, eight or ten years ago, in the Transactions of the American Ophthalmological Society, reported a case of neurofibroma of the orbit. It was removed successfully by operation. The patient recovered with 20/30 vision and good movement of the eyeball. Although the diagnosis was made by competent authorities at that time it proved to be malignant, and three or four years ago Dr. Oliver had to remove the eyeball and entire orbital contents, finding a sarcomatous condition.

DR. E. C. ELLETT, Memphis, after speaking of his difficulty in obtaining definite information about some details of the operation from the descriptions at his command, said that he received his best idea from Haab's hand-book of ophthalmologic operations. After making the skin incision, the periosteum is to be incised along the edge of the orbit and raised from the outer orbital wall until the spheno-maxillary fissure is exposed, not disturbing the soft parts.

DR. W. R. PARKER, Detroit, declared that it is absolutely necessary, both as to treatment and prognosis, to eliminate the so-called plexiform type, of which 35 or 40 cases have been reported. In the plexiform type the nerve fibrils are positively enlarged and are nearly always associated with elephantiasis of the skin, whereas in these cases the fibrils are perfectly normal in size. He said that there is nothing difficult in the Krönlein operation as far as exposing the orbit is concerned. The complications arising from involvement of the orbital contents would, of course, differ in each case.

BLOOD PRESSURE IN DIABETES.

BY DR. A. R. ELLIOTT, CHICAGO.

(*Concluded from page 30.*)

DISCUSSION.

DR. H. S. STARK, New York, said that he believes that in attempting to establish a relationship between cardiac, vascular or muscular disease, or in fact, any form of disease, and diabetes, one is confronted by the fact that the pathogenesis of the latter disease is not known. In consequence, our conclusions of to-day, however firm they may be, may be overthrown by the discoveries of to-morrow. Therefore, in order to establish a relationship between cardiac or vascular disease and diabetes, certain prominent features of diabetes, namely, glycosuria, acetonuria and ammonuria, should be taken into consideration. Unless this is done, attempts to establish a relationship between the two diseases will fail. The modus operandi by which lesions of the heart or organs may be produced is by foreign bodies which act as chemical irritants. The best proof of this is seen in arteriosclerosis. This in turn may cause thrombosis or embolism. Another method by which cardiac disease may be brought about is by overactivity of an organ which may make a vicious circle with other organs of the body. In diabetes, the kidney is overworked because of the polyuria, which, in turn, is caused by the polydipsia. He does not believe it can be demonstrated that diabetic endocarditis is a distinct pathologic entity. His observation has shown him that the most frequent vascular change met in diabetes is arteriosclerosis, and the least frequent is endocarditis. One thing of importance must be remembered—diabetes, almost from the start in the majority of the cases, is a chronic affection. It may exist ten or twenty years, and necessarily it must manifest itself in almost every organ in the body. He did not believe it could as yet be established that there is such a distinct pathologic entity as "diabetic endocarditis." It always had seemed strange to him, in observing a large number of cases, why the most frequently encountered cardiac disease, namely, chronic endocarditis, should be the least frequently encountered in diabetes. It stands to reason that if there is a distinct toxic element it would first manifest itself on the valves of the heart.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Dr. Wyeth on Organization.

Dr. John A. Wyeth, New York City, delivered an address on "The Value of Organization in Medicine," at the annual meeting of the Arkansas Medical Society, held at Little Rock. In emphasizing the importance of organization, Dr. Wyeth said, in part:

Intelligent cooperation between individuals for the accomplishment of a given end has marked every step of human progress. Scarcely a single page of history fails to teach the value of organization. It has been left to the medical profession in our own day to apply the lessons of organization to the amelioration of suffering and the saving of human life. Previous to the beginning of the nineteenth century practically little had been accomplished along this line. In the decade from 1840 to 1850 two important events occurred, viz., the organization of the American Medical Association and of the New York Academy of Medicine, both of which events occurred in 1847. About this time the discovery of anesthesia brought about a marked revival in surgery.

Dr. Wyeth then considered the reorganization of the American Medical Association, which, in his judgment, was the most important event in the development of medical organization in this country. After outlining the plan of organization and the success which has attended it in all of the states and territories, he said:

With all that we have accomplished in the first six years of this movement there remains much to be done. We must win those members of our profession who are as yet "without the walls," or at least the best of them; we must teach them and the public by precept and example that our material advancement is secondary to our obligation to mankind. There are at this date in the United States probably 30,000 illegal practitioners of medicine so deficient in equipment, professionally and morally, that they are a menace to the welfare of the community. There are medical colleges not yet up to the standard of our requirements. There is scarcely a community within our border that does not in some way violate all laws of health. The real value of organization is in the influence we can bring directly to bear on the body politic, and through this medium secure legislation which will solve these serious problems. This we can only do by intelligent cooperation and by the sacrifice of much of our material interests to the public good.

Organization in Pennsylvania.

The Bucks County (Pa.) Medical Society has elected as president for the coming year, Dr. J. B. Carrell of Hatboro. Dr. Carrell has sent out a letter to all of the members of the society asking their support and cooperation in the year's work. He says:

The county society is the unit of the state and national societies, and it behooves every reputable physician to become a member. I hope you will exert your best efforts to bring every reputable, regular physician out of the society into membership and that you will not rest until all are with us.

Insurance.

Since the publication of the last list in THE JOURNAL the following societies have taken action on this question:

PLYMOUTH DISTRICT (MASS.) MEDICAL SOCIETY.
UTAH STATE MEDICAL ASSOCIATION.
MONONGALIA COUNTY (W. VA.) MEDICAL SOCIETY.
BULLOCK COUNTY (ALA.) MEDICAL SOCIETY.
HENNEPIN COUNTY (MINN.) MEDICAL SOCIETY.
MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER (N. Y.).
PRATT COUNTY (KAN.) MEDICAL SOCIETY.

Organization in Utah.

At a recent meeting of the Utah State Medical Association the state was divided into three councilor districts and the organization of district societies authorized. It is planned to hold quarterly meetings of the district societies in different sections of the district. The fourth meeting for the third councilor district will be held at Panguitch Lake in July, at Helper in October, at Eureka in January and at Cedar City in April.

Book Notices

DIAGNOSIS OF ORGANIC NERVOUS DISEASES. By Christian A. Herter, M.D., Professor of Pharmacology and Therapeutics at Columbia University. Revised and Enlarged by L. Pierce Clark, M.D., Visiting Neurologist to the Randall's Island Hospitals and Schools. With 109 Illustrations. Cloth. Pp. 690. Price, $3.00. New York and London: G. P. Putnam's Sons, 1907.

A well balanced, consistent book on the diseases of the nervous system is a rarity. As yet the best neurologic literature is in the monographic stage. Most of the works that attempt to cover the whole field usually follow no general scheme based on pathology, physiology or semeiology. In a haphazard way they present a mass of disjointed, disconnected, unsystematized so-called facts. Hence rare, indeed, is the neurologic treatise that does not reveal a number of inconsistencies and contradictions. When these larger compilations are compressed into compends and handbooks the inconsistencies, contradictions, inadequate explanations and general confusion stand forth in glaring emphasis. For this and other reasons we are opposed to the use of compends and handbooks in neurology. They foster the little knowledge which, in neurology especially, is infinitely more dangerous than no knowledge at all.

The present volume is one of the best of this class, especially the two chapters V and VII, devoted respectively to the diagnosis of clinical types and the examination of the patient. Being of the class, however, which we consider harmful, we can not consistently recommend the book. Like all of its class, it will mislead the beginner in neurology, while for the advanced student it will present nothing that is new or of interest.

The justifiableness of the above strictures may be illustrated in a few random selections. For instance, in the first few pages the neuron concept is presented and strongly endorsed. Anent the work of Bethe and Apathy, the author says that their views "if established may be accepted as corollaries to the neuron conception, while its principle will remain. For the purposes of this book, therefore, we shall accept the conceptions of the neuron theory." And then throughout the rest of the book the principles of the neuron doctrine are all but wholly ignored, while the word neuron scarcely appears.

The expression, "complete hemiplegia," we are told on page 89, "implies that the paralysis affects all of one side;" but on page 95 we are informed that "the terms, complete and incomplete" are used "to qualify the degree of paralysis present in any given case." More serious than this contradiction in the use of terms, however, is the misinformation conveyed in the same sentence that the expression, complete hemiplegia, "is not strictly true," as implying "that the paralysis affects all of one side." It does affect all of one side, as shown by the tests of Potain and of Legendre, though the upper face is not as profoundly involved as the lower for well-known reasons.

Brown-Séquard's paralysis is given a correct clinical description on page 92, but its physiopathologic explanation is both confusing and inadequate.

On page 91 we are told that "double hemiplegia or diplegia is a paralysis of all four extremities." This is misleading. A mere quadriplegia is not the same, pathogenetically or symptomatically as a double hemiplegia or diplegia. A multiple neuritis, for instance, that happened to involve "all four extremities" would, according to this definition, be a double hemiplegia or diplegia.

In modern neurology we do not talk of brains being "overworked" in the popular sense employed by the author. Toxemia and other blood states are the more scientifically accepted causes of the symptoms he refers to (p. 157). The same criticism is to be made of the author's description of "cerebral concussion" (p. 597). Cerebral concussion as a pathologic or clinical entity is not known in modern neurology and the most recent text-books make no mention of it. Strange, therefore, is it to see more space devoted to it in this book than is devoted to neurasthenia.

The pathogenesis of cerebral apoplexy is detailed along old and partly relinquished lines (p. 344). The same may be said of the general description of the meningites. The author

thinks that "tubercular meningitis probably (!) depends on the deposition of tubercle bacilli" (p. 289).

In stating that the abuse of alcohol favors the development of the occupation neuroses (p. 313) the author confounds the latter disease with what is known as craft palsy. The former is a psychoneurosis; the latter a neuritic affection.

One wonders how "wryneck" can ever "be due solely to sexual excess" (p. 314); or how "dental irritation" may cause poliomyelitis (p. 339), or phimosis give rise to myelitis (p. 339).

On page 343 the traumatic neuroses are said to depend, in some cases, on organic changes. According to modern neurology such cases would then cease to be neuroses. They would be cases of hemorrhage, inflammation, softening or other form of well-known organic disease. The traumatic neuroses to-day are recognized as cases of hysteria or neurasthenia.

Like the older writers, the author makes masturbation the cause of many forms of trouble wherein to-day it is recognized as an effect or symptom (p. 315). He also believes in the traumatic origin of tabes (p. 338). He refers to the symptoms of syringomyelia as being both "distinctive" and "indistinctive" in such a way as to cause no little confusion.

Aside from the rather poorly executed illustrations, the publisher's part in the work is deserving of commendation. Misprints are remarkably few.

AIDS TO MEDICAL DIAGNOSIS. By Arthur Whiting, M.D., M.R.C.P., Physician to the Tottenham Hospital. Cloth. Pp. 152. Price, $1.00 net. New York: William Wood & Co., 1907.

AIDS TO DENTAL SURGERY. By A. S. Underwood, M.R.C.S., L.D.S., and D. Gabell, M.R.C.S., L.R.C.P., L.D.S. Second Edition. Cloth. Pp. 126. Price, $1.00. New York: William Wood & Co., 1907.

AIDS TO DIAGNOSIS AND TREATMENT OF DISEASES OF CHILDREN. By John McCaw, M.D., R.U.I., L.R.C.P., Edin., Physician to the Belfast Hospital for Sick Children. Third Edition. Cloth. Pp. 381. Price, $1.25. New York: William Wood & Co., 1907.

This series of books is intended for those who already possess some knowledge of the respective subjects, as do advanced students or graduates, and offers a large amount of practical information, chiefly clinical, in small compass.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

CONNECTICUT Eclectic Medical Examining Board, State Capitol, Hartford, July 9. Secretary, Dr. Thomas S. Hodge, Torrington.

ARKANSAS Eclectic State Medical Board, Little Rock, July 9. Secretary, Dr. A. J. Widener, Little Rock.

ARKANSAS Homeopathic State Medical Board, Little Rock, July 9. Secretary, Dr. V. H. Hallman, Hot Springs.

ARKANSAS State Medical Board, State Capitol Building, Little Rock, July 9. Secretary, Dr. F. T. Murphy, Brinkley.

MAINE Board of Registration in Medicine, State House, Augusta, July 9-10. Secretary, Dr. William J. Maybury, Saco.

CONNECTICUT Homeopathic Medical Examining Board, Grace Hospital, New Haven, July 9-10. Secretary, Dr. Edwin C. M. Hall, New Haven.

VERMONT State Board of Medical Registration, Burlington, July 9-11. Secretary, Dr. W. Scott Nay, Underhill.

WISCONSIN State Board of Medical Examiners, Capitol Building, Madison, July 9-11. Secretary, Dr. J. V. Stevens, Jefferson.

MISSOURI State Board of Health, Mexico, July 9-11. Secretary, Dr. J. A. B. Adcock, Warrensburg.

OREGON State Board of Medical Examiners, Portland, July 9-11. Secretary, Dr. Byron E. Miller, "The Dekum," Portland.

WEST VIRGINIA State Board of Health, Charleston, July 9-11. Secretary, Dr. H. A. Barbee, Point Pleasant.

SOUTH DAKOTA State Board of Medical Examiners, Sioux Falls, July 10-11. Secretary, Dr. H. E. McNutt, Aberdeen.

ILLINOIS State Board of Health, Great Northern Hotel, Chicago, July 25-27. Secretary, Dr. J. A. Egan, Springfield.

MASSACHUSETTS State Board of Registration in Medicine, State House, Boston, July 9-11. Secretary, Dr. E. B. Harvey, State House, Boston.

Tulane Adopts Higher Entrance Requirements.—The Medical Faculty of Tulane University decided May 29 that, not later than Jan. 1, 1910, the entrance educational requirement will be a four-year high school education or its equivalent, such high school course to be based on eight years in the elementary grades, plus one year devoted to physics, chemistry, biology and one modern language. The administrators have also endorsed the plan. Such action as this, taken by Tulane University as well as by the University of Texas, is the more commendable when one considers the educational conditions in the South, and it is an evidence that the southern schools are going to take an active part in the movement for higher standards in medical education.

What Constitutes a High School Course?

In the discussion of entrance requirements to medical schools the phrases, "a high school course," "a four-year high school course," and "a high school diploma" and a number of other expressions are commonly used. The question arises, "What constitutes a high school course, or what should be recognized as constituting a high school course?"

As with other departments of education, high schools vary widely in their curricula and in the amount of required prerequisite work in the grades. Some have only three years' work after seven years in the grades, others have three years' work after eight years in the grades, others have four years after seven years of elementary work, and still others have four years of work following eight years in the grades. Besides these differences, they vary much in regard to the subjects taught, the methods of teaching and the hours devoted to each subject.

Probably no department of education could be so advantageously made uniform as the high school course. It would draw the line at which a "common school education" would cease and the "higher," "college" or "university education" would begin. Common schools could then shape their curricula to lead up to this standard. Colleges and universities would have a more definite basis for a uniform entrance standard.

As a matter of fact, the movement for uniformity in high school courses has long since been under way. Probably no other division of education has ever been so thoroughly studied, nor has there been more discussion regarding any educational problem than that regarding what subjects should be taught in the modern high school, how these subjects should be taught and how much time should be devoted to each.

As is well known to those who have watched the progress of education in this country, in 1894 a committee of the National Educational Association, which has been entered in history as "The Committee of Ten," published their report which has been spoken of as "the most important educational document ever issued in the United States."

The report of the Committee of Ten* was based on nine special conferences, each of which took up a certain portion of the high school curriculum. Each conference was composed of ten leading educators carefully selected on account of their high standing in the branches to be discussed. These conferences were made up of 90 educators, making a total of 100 when we include the Committee of Ten. All of these were educators of national, many of international, reputation.

On the reports of the nine special conferences, therefore, the Committee of Ten based their famous report and suggested the time to be devoted to each subject. In this report four points seem to have been definitely established: 1, The subjects legitimately belonging in the program of studies of a high school were named; 2, the high school curriculum was to extend over four years; 3, it was to be preceded by eight years of graded elementary work, and 4, it was decided in all conferences without a single dissenting vote that every subject to be taught in the high school should be taught in the same manner to every pupil so long as he pursued it, no matter what the probable destination of the pupil might be.

The subjects legitimately belonging in the program of studies, together with the year in which it was suggested they be taught, as well as the suggested time to be devoted to each subject, are shown in the accompanying table, which is reproduced from the report of the Committee of Ten. This table is arranged to show how a high school could group the subjects, thereby giving the student an opportunity to elect the group which most strongly appealed to him.

In the construction of these programs the committee "adopted twenty as the maximum number of weekly periods, but with two qualifications, namely: That at least five of the twenty periods should be given to unprepared work, and that laboratory subjects should have double periods whenever that prolongation should be provided."

The committee report gives a number of valuable suggestions regarding the arrangement of work in the elementary grades, as well as regarding the selection and arrangement of courses in high schools. The groups of courses given in the accompanying table are purely suggestive and are not arbitrarily arranged. Nor is it essential that every high school teach all of the branches or any particular set of branches

* Published by American Book Company, Chicago.

named in the four programs. The four programs could be carried out economically in a single school, however, because, with a few inevitable exceptions, the several subjects occur simultaneously in at least three programs and with the same number of weekly periods.

The chief need, apparently, is a clear demarcation between what studies are elementary and what belong in the high school curriculum, as well as the clear understanding that a high school course represents four years of graded study, given to subjects clearly recognized as high school branches, preceded by eight years' study in the elementary grades. As has been seen the National Educational Association, through its Committee of Ten, has urged this standard for the high schools of the United States.

It is understood also that this same standard is the minimum requirement of preliminary education making colleges and universities eligible for the Carnegie Foundation lists.

The average of the conditions surrounding medical education throughout the United States induced the Council on Medical Education to suggest to the American Medical Association the adoption of this same standard as the minimum preliminary educational requirement to medical study. This standard was adopted by the House of Delegates of the American Medical Association at Portland in 1905, and again endorsed at the Atlantic City session in 1907.

It is hoped that in states where at present there are a considerable number of schools of varying standards, there will be a decided effort to secure uniformity on the above proposed basis.

It is hoped that in such states where the small number of standard high schools is due to lack of funds, legislatures may see the importance and advantage of having their high schools brought to a recognized standard, and make appropriations sufficient to bring about the needed improvements.

Finally, it is strongly recommended that the members of the medical profession both individually and collectively, lend their influence and assistance to those educators who are striving to have adopted a uniform standard high school course throughout the country, so that as soon as possible the present confusion as to what constitutes a high school course may be replaced by a fair degree of uniformity.

TABLE GIVING SUBJECTS SUGGESTED FOR A STANDARD HIGH SCHOOL.

Arranged to allow of an election by the student from four groups of subjects, as suggested by the Committee of Ten of the National Educational Association.

Year.	Classical. Three foreign languages (one modern).	Latin-Scientific. Two foreign languages (one modern).	Year.	Modern Languages. Two foreign languages (both modern).	English. One foreign language (ancient or modern).
I.	Latin ..... 5 p. English ..... 4 p. Algebra ..... 4 p. History ..... 4 p. Physical geography. 3 p. 20 p.	Latin ..... 5 p. English ..... 4 p. Algebra ..... 4 p. History ..... 4 p. Physical geography..... 3 p. 20 p.	I.	French (or German) begun .... 5 p. English ..... 4 p. Algebra ..... 4 p. History ..... 4 p. Physical geography. 3 p. 20 p.	Latin, or German, or French ..... 5 p. English ..... 4 p. Algebra ..... 4 p. History ..... 4 p. Physical geography .... 3 p. 20 p.
II.	Latin ..... 5 p. English ..... 2 p. *German (or French) begun... 4 p. Geometry ..... 3 p. Physics ..... 3 p. History ..... 3 p. 20 p.	Latin ..... 5 p. English ..... 2 p. German (or French) begun 4 p. Geometry ..... 3 p. Physics ..... 3 p. Botany or zoology..... 3 p. 20 p.	II.	French (or German) ..... 4 p. English ..... 2 p. German (or French) begun ..... 5 p. Geometry ..... 3 p. Physics ..... 3 p. Botany or zoology. 3 p. 20 p.	Latin, or German, or French.....5 or 4 p. English.....3 or 4 p. Geometry ..... 3 p. Physics ..... 3 p. History ..... 3 p. Botany or zoology ..... 3 p. 20 p.
III.	Latin ..... 4 p. *Greek ..... 5 p. English ..... 3 p. German (or French) 4 p. Mathematics (algebra, 2; geometry, 2) ..... 4 p. 20 p.	Latin ..... 4 p. English ..... 3 p. German (or French)..... 4 p. Mathematics (algebra, 2; geometry, 2) ..... 4 p. Astronomy ½ yr. and meteorology ½ yr..... 3 p. History ..... 2 p. 20 p.	III.	French (or German) ..... 4 p. English ..... 3 p. German (or French) 4 p. Mathematics (algebra, 2; geometry, 2) ..... 4 p. Astronomy ½ yr. and meteorology ½ yr. ..... 3 p. History ..... 2 p. 20 p.	Latin, or German, or French ..... 4 p. English (as in others, 3; additional, 2) ..... 5 p. Mathematics (algebra, 2; geometry, 2) ..... 4 p. Astronomy ½ yr. and meteorology ½ yr..... 3 p. History (as in Latin scientific, 2; additional, 2) 4 p. 20 p.
IV.	Latin ..... 4 p. Greek ..... 5 p. English ..... 2 p. German (or French) 3 p. Chemistry ..... 3 p. Trigonometry and higher algebra, or history.....3 p. 20 p.	Latin ..... 4 p. English (as in classical, 2; additional, 2)..... 4 p. German (or French).... 3 p. Chemistry ..... 3 p. Trigonometry and higher algebra or history..... 3 p. Geology or physiography ½ yr. And anatomy, physiology and hygiene ½ year... 3 p. 20 p.	IV.	French (or German) ..... 3 p. English (as in classical, 2; additional, 2) ..... 4 p. German (or French) 4 p. Chemistry ..... 3 p. Trigonometry and higher algebra, 3, or history ..... 3 p. Geology or physiography ½ year. And anatomy, physiology and hygiene ½ yr. ..... 3 p. 20 p.	Latin, or German, or French ..... 4 p. English (as in classical, 2; additional, 2) ..... 4 p. Chemistry ..... 3 p. Trigonometry and higher algebra ..... 3 p. History ..... 3 p. Geology or physiography ½ year. And anatomy, physiology and hygiene ½ yr.... 3 p. 20 p.

* In any school in which Greek can be better taught than a modern language, or in which local public opinion or the history of the school makes it desirable to teach Greek in an ample way, Greek may be substituted for German or French in the second year of the classical program.

The letter "p" means "periods," and the figures show "periods per week."

Marriages

CARLYLE POPE, M.D., to Miss Mary Kline, both of Cleveland, Ohio, June 20.

RAYMOND SAMUEL BROWN, M.D., Chicago, to Miss Mabel Collins, June 18.

H. S. CHURCH, M.D., Modoc, Ill., to Miss Ella Beare of Ellis Grove, Ill., June 25.

MARTIN J. IVEC, M.D., Chicago, to Miss Elizabeth Schall of Joliet, Ill., June 12.

S. Q. ELMORE, M.D., Gretna, Neb., to Miss Nellie Caples of Omaha, Neb., June 19.

PETER J. MCDERMOTT, M.D., to Miss Nora I. Gulshen, both of Kewanee, Ill., June 19.

JOHN ZEIGLER, M.D., Farmer City, Ill., to Miss Clara Squires of Godfrey, Ill., June 20.

PHILIP ABRAHAMSON, M.D., to Miss Hettie Edith Gillis, both of Philadelphia, June 18.

THOMAS J. KASTER, M.D., to Miss Rose Agnes McMahon, both of Chicago, June 22.

CLAUD A. SEARCY, M.D., to Miss Harryette Mayo, both of Hempstead, Texas, June 9.

ARTHUR M. HEILMAN, M.D., to Miss Alice Collier Patterson, both of Butler, Pa., June 18.

DENNIS JAMES NORMOYLE, M.D., to Miss Alice Virginia Dunn, both of Chicago, June 25.

WILLIAM POLK LONGMIRE, M.D., to Miss Grace May Weeks, both of Sapulpa, I. T., June 19.

WILLIAM HENRY BAHL, M.D., to Miss Edith Bruce, both of Chicago, at Joliet, Ill., June 14.

FLORIAN EDWARD SCHMIDT, M.D., to Miss Anna Elizabeth Feeney, both of Chicago, June 12.

WILLIAM WEST MACFARLAND, M.D., Pittsburg, to Miss Rose Minear of Athens, Ohio, June 12.

WALLACE S. GRAYSTON, M.D., Marion, Ind., to Miss Dessie B. Kitch of Huntington, Ind., June 4.

HERBERT L. TAYLOR, M.D., Portsmouth, N. H., to Miss Mabel A. Grundy of Lowell, Mass., June 29.

SAMUEL M. FREEDMAN, M.D., to Miss Theresa May Baerwald, both of Dallas, Texas, June 20.

GEORGE GRAVES, M.D., Herkimer, N. Y., to Miss Margaret Hering of Jersey City, N. J., June 20.

GROVER WILLIAM WENDE, M.D., to Mrs. Christine Smith Kerr, both of Buffalo, N. Y., recently.

CHARLES W. GARDINER, M.D., Batavia, N. Y., to Miss Susan L. Sherman of New York City, June 21.

GEORGE FRANK CARROLL, M.D., Biloxi, Miss., to Miss Ada Claire Keith of Louisville, Ga., June 19.

JOHN WARREN ACHORN, M.D., Boston, Mass., to Miss Harriet Priscilla Sawyer of St. Louis, Mo., June 22.

R. HARRY WARREN, M.D., West Chester, Pa., to Miss Etta May Kremer of Philadelphia, Pa., June 19.

CECIL MCCOY, M.D., Brooklyn, N. Y., to Miss Eleanor C. Mercereaux of Binghamton, N. Y., June 12.

ORD O. LEMASTER, M.D., Kettlerville, Ohio, to Miss Emma Garmhausen of New Bremen, Ohio, June 12.

HENRY REGINALD FAIRFAX, M.D., McComas, W. Va., to Miss Nell Virginia Randolph of Logan, Ohio, June 26.

ROBERT COURTNEY LOVING, M.D., Louisville, Ky., to Miss Anna Belle Cassel of Philadelphia, Pa., June 18.

LEE F. MCKAY, M.D., Martin, Tenn., to Miss Linnie Allen Myles of Fulton, Ky., at Paducah, Ky., June 26.

JOHN EUGENE BROOKS, M.D., Bangor, Maine, to Miss Gertrude Josephine Gorman of Salem, Maine, June 18.

WALTER SCOTT MOONLIGHT, M.D., Eureka, Kan., to Miss Adelaide Blanche Patterson of Leavenworth, Kan., June 19.

Deaths

George Wheaton Carr, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1860; a member of the Rhode Island and Providence District medical societies; surgeon of the Providence Cadets and assistant surgeon general of Rhode Island before the Civil War; during the Civil War assistant surgeon of the First Regiment Detached Militia; assistant surgeon and later surgeon of the Second Rhode Island Volunteer Infantry; medical director of the State Militia for 13 years after its reorganization; for many years physician of the Rhode Island State Prison; surgeon of the Rhode Island Hospital for 20 years, and for six years a member of the board of examiners of the Rhode Island Medical Society; a surgeon of exceptional ability and one of the most widely known practitioners of the state; died at his home in Providence, June 18, after an illness of three years, from senile debility, aged 73.

Orville Anderson Kennedy, M.D. Hospital College of Medicine, Louisvile, Ky., 1889; a member of the Kentucky State Medical Association and Jefferson County Medical Society, Louisville Academy of Medicine, Louisville Medical and Surgical Society, and Louisville Medical Examiners' Association; professor of chemistry in his alma mater, and formerly professor of chemistry in Central University, died at the Jewish Hospital, Louisville, June 22, after an illness of about three weeks, from acute septicemia, supposed to be due to glanders, aged 42.

Henry E. Muhlenberg, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1871; at one time a cadet in the United States Naval Academy, Annapolis; for several years a surgeon in the United States Marine-Hospital Service; a member of the Medical Society of the State of Pennsylvania and the Lancaster County Medical Society; city councilman of Lancaster, and mayor of the city in 1899; died at his home, June 17, from heart disease, aged 57.

W. F. Kremer, M.D. University of Iowa College of Medicine, Iowa City, 1864; of Grant's Pass, Ore.; for several terms mayor of that city; a member of the Oregon State Medical Association, Southern Oregon Medical Association and Josephine County Medical Society; physician and health officer of Josephine County; died suddenly at the home of his son, in San Francisco, June 14, aged 64.

James Henry Dwight Worsham, M.D. Medical College of the State of South Carolina, Charleston, 1853; surgeon of the Second Georgia Infantry, C. S. A., during the Civil War; for about 19 years county physician of Bibb County, Ga, an honorary member of the Macon Medical Society, died at his home in Macon, May 25, from cerebral hemorrhage, after an illness of three days, aged 74.

William P. Youkey, M.D. Medical College of Indiana, Indianapolis, 1879; a veteran of the Civil War; first surgeon of the Soldiers' Home, Lafayette; at one time secretary of the city board of health; and medical director of the Detention Hospital, died at his home in Lafayette, June 17, from heart disease, after an illness of several weeks, aged 61.

James Medford Williams, M.D. University of Georgia, Medical Department, Augusta, 1839; a member of the Medical Association of the State of Alabama and Bibb County Medical Society; for many years a practitioner of Centerville, Ala., died at the home of his daughter in that city, June 20, after an illness of several weeks, aged 92.

Lewis W. Hodgkins, M.D. Albany (N. Y.) Medical College, 1855; surgeon of the Sixty-eighth Indiana Volunteer Infantry during the Civil War; afterward acting assistant surgeon United States Marine-Hospital Service, died at his home in Ellsworth, Maine, June 11, from chronic bronchitis, after a brief illness, aged 77.

Arthur Douglas Hayes, M.D. Dartmouth Medical School, Hanover, N. H., 1896; a member of the Connecticut State, Hartford County and Hartford medical societies, and secretary of the latter organization, died at his home in Hartford, June 17, from tuberculosis, after a long illness, aged 40.

Charles Munger, M.D. Bellevue Hospital Medical College, New York City, 1871; a member of the American Medical Association, and a prominent practitioner of Oneida County, N. Y., died at his home in Knoxboro, June 19, from cerebral hemorrhage, after an illness of three days, aged 66.

Alfred H. Champlin, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869; for a number of years a director of the school board of Englewood and later a member of the Chicago board of education, died at his home in Chicago, June 25, from diabetes, aged 66.

Daniel P. Van Court, M.D. Albany (N. Y.) Medical College, 1875; of Mohawk, N. Y.; a veteran of the Civil War; a member of the Medical Society of the State of New York and Herkimer County Medical Society, and county health officer, died at his home, June 15, aged 69.

Alexander Porter Brown, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1858; surgeon in the Confederate army during the Civil War; president of the State Medical Association of Texas in 1884; died at his home in Fort Worth, June 20, aged 73.

Henry Long, M.D. Eclectic Medical Institute, Cincinnati, 1862; of Indianapolis; at one time a professor in that institution, and a charter member of the State Medical Association, died at his summer home in Anderson, Ind., June 23, from cancer of the liver, aged 69.

Peter Walker McMurrick McLay, M.D. Medical Department of Victoria College, Toronto, 1870; one of the oldest and best known practitioners of Elgin County, Ont., died at his home in Aylmer, June 14, after an illness of more than a year, aged 62.

Thomas A. Elliott, M.D. University of Tennessee, Medical Department, Nashville, '78; died at his home in Poland, Ind., June 15, aged 56.

William Ward Hubbard, M.D. Bellevue Hospital Medical College, New York City, 1872; a surgeon in the Confederate service during the Civil War; died at his home in Perth Amboy, N. J., June 18, from cerebral hemorrhage, after an illness of six days, aged 68.

Henry Pineo Clay, M.D. New York University Medical College, New York City, 1879; secretary of the Cumberland County (N. S.) Medical Association, and county health officer, died suddenly, June 15, at his home in Pugwash, from heart disease, aged 48.

Joseph Stewart Freeling, M.D. Medical Department of the University of Tennessee, Nashville, 1880; for 22 years a practitioner of Scott County, Mo., died at his home in Benton, from rheumatism, after an illness of more than three years and a half, aged 57.

Thomas Hill, M.D. Niagara University Medical Department, Buffalo, N. Y., 1886; hospital steward in the United States Army for many years, died at his home in Brooklyn, June 19, from cerebral hemorrhage, after a brief illness, aged 62.

Israel Hart, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1853; assistant surgeon of the Thirty-eighth New Jersey Volunteer Infantry during the Civil War, died at his home in Pennington, N. J., June 23, aged 79.

John A. Stillwell, M.D. Howard University, Medical Department, Washington, D. C., 1882; a prominent colored practitioner of Orange, N. J., died at his home in that city, June 18, from kidney disease, after a short illness, aged 50.

Willard Parker, M.D. College of Physicians and Surgeons in the City of New York, 1870; a well-known physician of New York City, died at his home June 24, from rheumatic endocarditis, after an illness of one month, aged 60.

Henry W. Fulton, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1872; of East Liberty, Pittsburg, Pa.; a veteran of the Civil War died at a hotel in Atlantic City, N. J., June 23, from heart disease, aged 69.

Sylvester Dudley Lewis, M.D. Albany (N. Y.) Medical College, 1861; for many years a practitioner of Amsterdam, N. Y., and coroner of Montgomery County; died June 17, at the home of his son, in Syracuse, aged 79.

Emanuel Manny Koblitz, M.D. Western Reserve University Medical College, 1904; a member of the Ohio State Medical Association and Cuyahoga County Medical Society, died at his home in Cleveland, June 7, aged 24.

Archibald R. Small, M.D. Rush Medical College, Chicago, 1874; a member of the American Medical Association, died at his home in Chicago, June 21, from disease of the liver, after an illness of two months, aged 56.

James D. Folsom, M.D. Dartmouth Medical School, Hanover, N. H., 1850; for many years a prominent physician of St. Johnsbury, Vt., died at his home in that city, June 20, after an illness of two years, aged 79.

Edward H. Birchhead, M.D. Bellevue Hospital Medical College, New York City, 1883; a member of the Medical Society of Virginia and Piedmont Medical Society, died at his home near Rivanna, June 14, aged 46.

John Henry Howard, M.D. Medical Department of Fort Worth (Texas) University, 1906, of Dibble, I. T., is reported to have been shot and instantly killed in a fight in a lodge room at Dibble, June 24, aged 38.

A. H. Manier, M.D., a pioneer practitioner of Tennessee and for more than forty years a resident of Washington, died from pneumonia, February 2, at his home in Olympia, Wash., after a brief illness, aged 84.

John Deetrick, M.D. Homeopathic Medical College of Missouri, St. Louis, 1873; of Youngstown, Ohio; died at the City Hospital, in that city, June 23, from injuries sustained in a fall two weeks before, aged 62.

Henry Shaefer Hutchinson, M.D. University of Pennsylvania Department of Medicine, Philadelphia, 1907; is reported to have committed suicide, by cutting his throat at Lansdowne, Pa., June 19, aged 25.

Orpheus B. Bird, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1864; formerly a resident of Ocean Grove, N. J., died June 3, at his home in Santa Barbara, Cal., from diabetes.

Laurel E. Robinson, M.D. Rush Medical College, Chicago, 1874; for five years a hospital steward in the Army, died at his home in Clyde, Ohio, June 17, from cerebral hemorrhage, aged 61.

Mary Brewer, M.D. New York Medical College and Hospital for Women, New York City, 1894; died at her home in Germantown, Philadelphia, June 20, after a protracted illness.

Charles E. Severance, M.D. New York University Medical College, New York City, 1858; died at his home in Brattleboro, Vt., June 20, after an illness of three days, aged 72.

George C. Irwin, M.D. Atlanta (Ga.) Medical College, 1889; a member of the American Medical Association, died at his home in Young Harris, Ga., June 15, aged 43.

Carlos Fred Higgs, M.D. Detroit (Mich.) College of Medicine, 1902; of Deerfield, Mich., died June 17, in Harper Hospital, Detroit, after an operation, aged 27.

James J. Sharp, M.D. Eclectic Medical College of the City of New York, 1871; died at his home in Arcade, N. Y., June 17, from paralysis, aged 78.

B. F. A. Kueny, M.D. Hahnemann Medical College and Hospital, Chicago, 1878; of Dayton and Sheridan, Wyo., died in Sheridan, June 18.

Harley L. Leonard, M.D. Eclectic Medical Institute, Cincinnati, 1880; died suddenly at his home in Syracuse, N. Y., June 16, aged 57.

Deaths Abroad.

Moritz Litten, M.D., professor of internal medicine at Berlin, died at Liebenstein, May 31, aged 62. He was the first to call attention to the changes in the fundus of the eye in septic affections, and the introduction of the centrifuge into medicine is attributed to him, as also the diaphragm sign called by his name. His works on embolism of the lungs, "contusion pneumonia," palpation of the kidney, etc., have carried his name far and wide. His latest article on pneumonia after traumatism was recently reviewed in these columns, page 1729 of the last volume.

A. Charrin, M.D., professor of general pathology at the Collège de France at Paris and agrégé libre in the medical faculty, died May 21, aged 50. He was one of the most untiring workers in the study of biologic problems and solved a number relating to soluble poisons, vaccines, the defense of the body against microbian invasion and pathologic heredity, while keeping up his work in the maternity.

E. Mendel, M.D., professor of psychiatry at Berlin, died June 24, from heart disease, aged 68. His experience and works on nervous and mental diseases have won him international fame as an authority on lunacy, etc. He served as a member of the German Reichstag from 1877 to 1881, and has always taken a prominent part in the organization of the profession.

T. von Jürgensen, M.D., professor of materia medica and chief of the medical polyclinic at Tübingen, died May 8, of a postinfluenzal heart affection, aged 67.

Society Proceedings

COMING MEETINGS.

Oregon State Medical Association, Seaside, July 12-13.
Minnesota State Medical Association, Duluth, August 13.
Ohio State Medical Association, Cedar Point, August 28.
Wisconsin State Medical Society, Superior, August 20-22.

MASSACHUSETTS MEDICAL SOCIETY.

One Hundred and Twenty-sixth Annual Meeting, held in Boston, June 11-12, 1907.

Under the Presidency of DR. GEORGE W. GAY of Newton.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. George W. Gay, Newton; vice-president, Dr. Francis J. Canedy, Shelburne Falls; secretary, Dr. Francis W. Goss, Roxbury; treasurer, Dr. E. N. Buckinham, Boston; librarian, Dr. E. H. Brigham, Boston; Dr. Arthur P. Cabot, chairman, and Dr. Thomas F. Harrington, secretary, of the Associated Committee on Tuberculosis. Dr. F. Forchheimer, Cincinnati, Ohio, was named as Shattuck lecturer for 1908, and Dr. Thomas F. Harrington, Boston, will deliver the annual oration.

Reports of Officers.

The secretary, Dr. Goss, announced that 169 new members had been added to the list during the year, and that 37 deaths had occurred. The treasurer's report showed current receipts of over $28,000 and a permanent fund of over $40,000.

The governor of Massachusetts and the members of the state legislature were unanimously voted the thanks of the society for the stand taken on matters pertaining to medicine and surgery. The committee on legislation reported that the osteopathy bill had been defeated, and extended its thanks to the auxiliary legislative committee. The committee on medical diplomas was ordered to revise the list of colleges whose graduates are eligible to membership in the Massachusetts Medical Society. The recent report of the relative standing of medical colleges which appeared in THE JOURNAL was referred to in complimentary terms. The committee on legislation was instructed to secure action in the matter of regulating expert medical testimony in the courts.

The committee on tuberculosis was voted an appropriation of $300, and a like sum was voted as a contribution to the N. S. Davis memorial fund.

Exhibits.

The scientific exhibit was of more than usual interest, and the commercial exhibit approached nearer to the standard set by the American Medical Association than the exhibit of any previous year, hence was considered more valuable to the members of the society.

At the annual dinner of the society, which was attended by over 1,400 physicians, Dr. Joseph D. Bryant, President of the American Medical Association, outlined the aims of the Association, and referred to the great value of cooperation and organization of the medical profession.

Class Method for Home Treatment of Tuberculosis.

DR. J. H. PRATT, Boston, gave a detailed account of the class method for the home treatment of tuberculosis. Membership in the class is confined to those in whom the clinical diagnosis has been confirmed, either by finding tubercle bacilli in the sputum, or by a positive tuberculin test. Fifty-two patients had been admitted to the class since it was started, nearly two years ago. About 75 per cent. of 24 incipient and moderately advanced cases recovered. No member of the class is graduated until the disease is arrested and the member is able to return to work. Seventeen patients have been graduated. The average gain in weight was 25.2 pounds, the greatest gain 60 pounds. Eight patients have been at work 20 weeks or over, and in none has the disease returned.

Channels of Infection in Tuberculosis.

DR. THEOBALD SMITH, Boston, stated that the coughing consumptive is the chief source of infection, and that most cases of tuberculosis are due to inhalation or aspiration of the tubercle bacillus. Dr. Smith is reported as having said that in infants bacilli probably gain entrance through all portals more easily than later in life and that the disease becomes more easily generalized. There are said to be no rational grounds for believing that latency in infancy plays any appreciable rôle in the disease of later decades, but ingestion probably does play an important part in infant tuberculosis. Bovine tubercle bacilli are often associated with a certain at present not fully calculable proportion of cases of abdominal and cervical lymph-node tuberculosis in infants and children. There is no evidence that bovine bacilli may be transformed and assume the human type in the human body. The discharge of tubercle bacilli into the milk of cows may take place abundantly in udder tuberculosis in a small proportion of manifestly tuberculous cows. Without evidence of udder disease it may take place at times in very small numbers. The reasonable restriction of bovine tuberculosis below the danger limit to man is possible with the aid of tuberculin, segregation and the removal of clinical cases of udder disease. Eventually complete elimination can be brought about in this way in any herd, provided other domestic animals, such as pigs, cats and dogs, are kept under control as possible reintroducers of the infection. Complete elimination of bovine tuberculosis may be hoped for in the distant future. The factor of bovine tuberculosis in the human malady is not of such importance that it should be permitted to imperil the proper execution of measures to relieve and cure the strictly human disease or divert attention from it as the chief evil.

Lead Poisoning in Rural Communities.

DR. W. N. COWLES, Ayer, related a number of instances of lead poisoning, the result of drinking water conveyed in lead pipes, or well water in which lead had accidentally been dropped.

Roentgen Ray in Pediatrics.

DR. T. M. ROTCH, Boston, emphasized the value of the Roentgen ray in the diagnosis of diseases of bones of children. The paper was illustrated by a large number of lantern slides, which represented the author's experiences at the Children's Hospital. He advocated the use of the Roentgen ray in all cases.

Medical Expert Testimony.

HON. LOUIS C. SOUTHARD, Boston, directed attention to the fallacy of so-called expert testimony because it is a common occurrence to have two experts of equal reputation take opposite sides, one arguing that the plaintiff is severely injured and the other claiming that the plaintiff is hysterical. He suggested that the court appoint one or more medical experts, whenever such are needed, in substantially the same manner, in which masters and auditors are appointed in civil cases. Let either side make application to the court, and on good cause shown have the judge appoint one or more experts. If neither side makes the application, let the court have the authority to make the appointment on its own motion should the judge consider that occasion demands. If both sides agree on one expert, let the court be authorized to make the appointment in its discretion, but not be compelled to accept the choice of the parties should the judge deem it necessary, in the interests of justice, to make a different selection; let the expert or experts so appointed be called to the witness stand and subjected to the same examination, so far as possible, as that now customary. It would seem to be also reasonable to provide that on the application of either side and on good cause shown, the court expert should have the right and privilege of examining the injured or insane person before the trial. It should also be provided that the compensation of the experts should be fixed in the same way that provision is now made for the pay of masters and auditors.

Other Papers Read.

Because of lack of data it is impossible to present abstracts of the following papers:

"Operative Treatment of Varicose Veins," by Dr. J. T. Bottomley, Boston; "The Prostate from the Surgical Standpoint," by Dr. C. S. Benson, Haverhill; "Stenosis of Pylorus in Infants," by Dr. C. L. Scudder, Boston; "Treatment of Stricture of Urethra," by Dr. F. S. Watson, Boston; "Subacute Polymyositis," by Dr. B. T. Burley, Worcester; "Opsonins and Bacterial Vaccines," by Drs. L. S. Medalia and T. Leary, Boston; "Bacterial Vaccines in Treatment of Joint Diseases," by Dr. C. F. Painter, Boston; "Treatment of Typhoid Fever by Serum Therapy," by Dr. N. W. Richardson, Jamaica Plain; "Factory Inspection," by Dr. F. G. Wheatley, North Abbington; "Health Inspectors, Their Function," by Dr. Charles Harrington, Boston; "The Past, Present and Future of Tuberculosis," by Dr. F. C. Shattuck, Boston.

AMERICAN ACADEMY OF MEDICINE.

Fifty-Second Annual Meeting, held at Atlantic City, June 1 and 3, 1907.

(Concluded from page 2206.)

What Is the Primary Cause of Non-Legislation and Mal-Legislation with Regard to Medical Matters?

DR. THOMAS H. SHASTID, Marion, Ill., claimed that there is much amiss in the way of legislation in this country with regard to matters medical. A central operative vicious condition accounting for this was said to reside in the ridiculous character of the instruction (or the total absence of instruction) given to-day in the courses on legal medicine and allied topics in the vast majority of our schools of law. The extent and character of medical instruction as it ought to be imparted in the law schools was described with the inevitable effect of such instruction, with a comparison of the extent and character of medical instruction as it actually is given in the law schools, with its inevitable effect. It was asserted that the extra time and effort required of the law student to acquire

a proper knowledge of medical matters would, in the end, be to him no burden, but rather a benefit.

The State Board of Medical Examiners.

DR. HENRY BEATES, JR., Philadelphia, gave the following suggestions for the self-evident and necessary modifications of medical legislation: Enlightenment of the public as to the present status of medical education, so-called, and parallel therewith, education as to the actual needs of the hour. He thought it incumbent on public opinion to demand proper medical education. The profession and the public should be taught that the laws must be so amended as to compel medical colleges to admit as students only those who have had proper preparatory training; that the laws require the examinations to be real tests of qualification and practice; that the boards having proof that the catalogue announcements and diploma signaturized by its faculty and proper officials are misrepresentations of facts be empowered to refuse legal recognition of such institutions, and if persisted in, to recommend revocation of its charter. These responsible duties of higher citizenship, it was said, could be performed only by men of education, sterling integrity, undaunted courage; in fine, by men of experience, tact and character.

Necessity for Cooperation in the Movement for a National Department of Health.

PROF. J. PEASE NORTON, New Haven, Conn., said that the success of the movement for a federal organization of public health work requires widespread cooperation among all learned, philanthropic and fraternal associations. The appointment of a committee of one hundred was the result of a vote passed by the American Association for the Advancement of Science at its Ithaca meeting, June 30, 1906. Since that date Prof. Irving Fisher, chairman, has appointed such a committee, consisting of persons identified with the leading learned and philanthropic societies which hold these objects in whole or in part. The purpose of this committee is to secure cooperation among many great associations capable of wielding vast influence and representing the power requisite for accomplishing the definite objects proposed. To work out the problem special committees have been appointed on legislation, finance, publicity, organization of health clubs, and cooperation. Beyond the work of these committees a far larger problem is the practical one of adequately presenting the movement. It is thought that $100,000,000 appropriated annually by the federal government would not be large for 80,000,000 population. To accomplish the thorough rousing of the people to the necessities of the movement, it is stated that no more effective means could be imagined than the endowment by a Carnegie or a Rockefeller of a great International Institute of Peace at The Hague. International conferences should be held. Great laboratories should be endowed and equipped for experts devising inventions and discoveries against disease and death.

Criminal Abortion.

DR. HENRY W. CATTELL, Philadelphia, regarded the criminal abortionist as one of the greatest menaces to civilized society. That he exists in numbers, both within and without the medical profession, can not be denied. He thought it important that the public should be educated as to the wide extent to which the practice is now in vogue in order that popular sentiment may be made to condemn its performance. The medico-legal aspects of abortion, especially with regard to state and national legislation, were discussed and a plea made for revoking the license of any registered physician found guilty of performing criminal abortion.

DISCUSSION ON PAPERS OF DRS. SHASTID, BEATES, NORTON AND CATTELL.

DR. S. A. KNOPF thought it preposterous to expect that every physician, after he had been in practice for ten or fifteen years, on going to another state must submit to certain examinations in chemistry, physiology and anatomy. He, therefore, believes that an established bureau of health should make a standard for permission to practice throughout the United States.

DR. ERNEST B. HOAG, Pasadena, Cal., thought men should qualify for position on the state boards. The questions usually propounded, he thought, do not tend to ascertain the final result of a man's education, but what he remembered of the things that he ought to forget.

DR. JOHN B. ROBERTS said that because a man had practiced medicine ten or fifteen years ago he is not necessarily competent to practice at the present time; and any man with a good medical education who had been licensed to practice, who can not within six or eight weeks refresh his memory sufficiently to answer questions of the average examining board has no business to try to practice medicine.

DR. EDWARD JACKSON, Denver, asserted that no medical board has been devised that would work well, except it be composed of men who desire to serve the community and to deal justly with those coming before it. In the Colorado state board rules of the preliminary examination are drawn up, but the examiners are not tied down to a particular form.

DR. M. G. MOTTER, Washington, D. C., said that from the fact that every one before examinations balks at anatomy, chemistry and physiology, it is evident that these three studies are not taught properly in medical schools.

DR. GARDNER T. SWARTZ questioned whether a national examining board would be satisfactory to any number of states.

DR. LEARTUS CONNOR claimed that before there could be any effective regulation of the practice of medicine the people must be educated regarding conditions that should prevail.

DR. EDWIN B. HARVEY said that the crime of abortion is not a medical question; that he who commits abortion is not practicing medicine, but is committing a crime against the statute of every commonwealth in the country.

DR. SHASTID said that a national examining board is a practical impossibility, the government having no power to appoint an examining board. This power can be given to the government by the individual states by amendment to the Constitution, brought about by a two-thirds vote of the states. This is practically an impossibility.

DR. WINFIELD S. HALL, Chicago, made a brief plea for rational examinations, not only before state boards, but before hospital boards and in the departments of medical schools to advance students from one year's work to another. The whole subject of examinations, he thought, has been on a wrong basis and the effort should be rather to ascertain the real knowledge of the one examined than of memory of text-book instruction.

DR. CATTELL said regarding the Pennsylvania law on abortion, the committee had been assured that no medical law should pass the legislature that did not provide for the revocation of license in the event of the performance of criminal abortion. This promise had been kept so well that the osteopathic bill recently passed by the senate had a provision for the revocation of license for the performance of criminal abortion.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Thomas D. Davis, Pittsburg; vice-presidents, Drs. James H. McBride, Pasadena, Cal.; Frederick T. Rogers, Providence, R. I.; Lewis S. McMurtry, Louisville, Ky.; secretary-treasurer, Dr. Charles McIntire, Easton, Pa.; assistant secretary, Dr. Alex. R. Craig, Easton.

MICHIGAN STATE MEDICAL SOCIETY.

Forty-Second Annual Meeting, held at Saginaw, May 15 and 16, 1907.

The President, DR. C. B. STOCKWELL, Port Huron, in the Chair.

The registration at this meeting was 341, the largest since the Detroit meeting in 1903. The secretary, Dr. B. R. Schenck, Detroit, reported that there are 2,011 members, from 55 counties.

Officers Elected.

The following officers were elected: President, Dr. Herman Ostrander, Kalamazoo; vice-presidents, Drs. Walter R. Parker, Ann Arbor; E. E. Curtis, Saginaw; H. J. Kinne, Frankfort, and

H. H. Bower, Greenville; secretary, Dr. B. R. Schenck, Detroit; delegates to American Medical Association, for two years, Dr. H. O. Walker, Detroit; Dr. Reuben Peterson, Ann Arbor; alternates, Drs. D. K. Black, Greenville; Dr. C. H. Johnson, Grand Rapids.

The place of meeting for 1908 is Manistee; the time to be announced later.

The house of delegates held three sessions. In the report of the council, Dr. C. B. Burr paid an eloquent tribute to the memory of Dr. Herdman, formerly councilor of the first district.

The work of Dr. J. N. McCormack was reviewed, and it was shown that postgraduate courses had been established in six county societies.

Reports of Committees.

The committee on legislation and public policy reported through Dr. J. W. Inches of St. Clair County. It was shown that the bill amending the criminal malpractice act, which was prepared pursuant to a resolution offered in the gynecologic section at the 1906 meeting, had been referred to the house committee on judiciary, and that this committee had refused to report it "on the ground that such an amendment would lessen the probability of a conviction by rendering unavailable evidence which can now be used. Your committee, after further consideration, is of the opinion that the point raised by the committee on judiciary is well taken and nothing further has been done in the matter."

The bill prepared by the committee on the "patent medicine" evil and presented by the legislative committee was found by the house committee on public health to be entirely too drastic. A substitute bill, conforming more strictly to the provisions of the national law, has, therefore, been prepared. It was shown by the committee's report that the L'Esperance bill, amending the medical practice act, is not receiving the endorsement it deserves from the members of the state society. Resolutions were later unanimously adopted endorsing the L'Esperance bill and the secretary was ordered to transmit a copy of the resolution to each member of the legislature.

Dr. G. A. Hafford, chairman of the committee on the "patent medicine" evil, said in his report that the committee had made an effort to call the attention of the lay press to the pernicious effects of much of the advertising matter carried in the periodicals of the state. A letter had been sent to the secretary of the press association, but it apparently received no attention as the committee did not receive even the courtesy of a reply. The committee had been able to get resolutions before religious and ministerial conventions on several occasions regarding the advertisements in the religious press. "With the medical press we have as great difficulty as with any other. Not alone the cheaper and irresponsible publications which cater to the uneducated physician and whose main assets are the voluminous advertisements, which fill their cheaply printed pages, but some of the higher grade of medical journals, and even our own organ might, in the opinion of the committee, be open to criticism."

The committee's bill relative to pure food and drugs was reported as in the hands of the attorney general of the state. It was recommended that the members of the society keep copies of the reprinted Collier articles on their office tables.

On recommendation of the council, the house of delegates defined the position of the state journal, regarding advertising as follows: "Advertisements of remedies approved by the Council on Pharmacy and Chemistry of the American Medical Association may be admitted. Remedies disapproved by the Council shall be excluded. Remedies advertised to the laity shall be excluded. The journal does not necessarily approve of the remedies, articles, hospitals, schools, etc., advertised. Reading notices in 'The Advertiser' shall be excluded after existing contracts expire. The journal invites professional criticism of individual advertisements. The editor is instructed to exclude advertisements of remedies which seem questionable."

Dr. W. R. Parker, chairman of the committee to encourage the systematic examination of the eyes and ears of school children, reported that the State Board of Health and the State Board of Education had adopted resolutions to the effect "that measures be taken by boards of health, boards of education and school authorities, and, where possible, legislation be secured looking to the examination of the eyes and ears of all school children, that disease in its incipiency may be discovered and corrected."

A resolution was adopted requesting the committee on legislation and public policy to ask the legislature for an appropriation of $500 to be placed at the disposal of the committee.

Dr. Fleming Carrow, Michigan member of the National Legislative Council, American Medical Association, reported regarding the work accomplished during the year.

Contract Practice.

One session of the general body was given up to the consideration of the contract practice problem. The committee on contract practice, through Dr. T. S. Langford of Jackson, gave a detailed report of conditions throughout the state. The conclusion of the report is as follows: "Your committee would call attention to certain facts sought out by correspondents in their reports. Not all forms of contract practice should be subject to condemnation, as for example, contract practice as carried on for certain mining corporations. In some communities men of unquestionable moral integrity and high standing in the profession have been and a few seem yet to be engaged in forms of contract practice which seem to the committee objectionable. In most instances local societies are totally unable to control the evil without serious danger of disruption, although a few counties, notably Marquette, Mason and Emmet, have succeeded in holding the practice in check.

Resolutions were adopted as follows:

WHEREAS, In the State of Michigan there is a large amount of medical and surgical service rendered to individuals in accordance with some form of contract entered into by physicians and certain organizations; and

WHEREAS, This form of practice in a great number of instances works to the serious detriment of the interests of the profession and of the general public; and

WHEREAS, This form of practice is not diminishing, but on the contrary seems to be increasing at a rapid rate; be it

Resolved, That the Michigan State Medical Society heartily commends and supports judicious action of the component county societies to the end that objectionable practice of this character be abolished or limited as far as possible; and be it further

Resolved, That the secretary of each county society be urged to file with the state secretary as much data as possible regarding the character of such contracts and the name of organizations seeking to make such arrangements with physicians with an approximation of the number of patients affected thereby, and to secure as complete a list as possible of members who agree not to do contract practice, and that these reports and names be compiled and published in a regular issue of the *Journal*, further, be it

Resolved, That the state secretary send a copy of these resolutions to all employers' liability companies, sick benefit and fraternal organizations doing business in Michigan which solicit physicians to enter into such contracts.

WHEREAS, The average medical student graduates with little other than intuitive knowledge regarding the ethics of his profession; be it

Resolved, That the council endeavor to establish in each Michigan medical school a course of instruction on this vital topic, and that special attention be thereby called to the evils of contract practice and the division of fees, and to the importance of early affiliation with the county and state society.

Dr. A. P. Biddle was presented with a magnificent silver platter as a token of appreciation for his six years of arduous labors as secretary-editor. Dr. Burr, chairman of the council, made the presentation speech.

The Uplands of Medicine.

DR. C. B. STOCKWELL, Port Huron, referred to the inspiring progress of medicine, urged more effective and expert teaching of medical students, recommended instruction of the public especially in preventive medicine, condemned contract practice and the lowering of fees for insurance examinations, and emphasized the need of cooperation of all medical men, and exclusion from the regular ranks only of those grossly unworthy as abortionists and drug habitués. "Harmony in feeling and coordination in action mean a united profession, mean power, mean life, mean success, mean the elevation of the physician to the place where it was ever meant he should stand, the first and highest place among the sons of men."

Methods of Diagnosis.

DR. J. B. HERRICK, Chicago, pointed out the need for the close association of the clinician with laboratory methods of diagnosis. So far as possible each practitioner should make his own laboratory tests. But new laboratory methods in diagno-

sis do not always prove reliable and important, and after all the essential instrument in arriving at a comprehensive diagnosis in the brain, aided by the direct use of the five senses. In represents both sides without bias. The skilled diagnostician adds to the saturated solution of shapeless data the one needed fact that crystallizes out the all-including diagnosis. The price of skill in diagnosis is work.

Surgical Features of Typhoid Fever.

DR. H. C. WYMAN, Detroit, said that a third of the deaths from typhoid are due to hemorrhage or perforation. Other causes of death are meningeal, pleural, gall bladder and medullary infections. Surgery can remedy hemorrhage by intravenous infusion, celiotomy and iliocolostomy. For perforation only a short search for the perforated area should be made, and if not then found a simple enterostomy should be performed. Surgery may also be invoked to drain meninges, pleura, bile passages and periosteum or medullary cavity. In any severe case of typhoid, direct irrigation of the affected gut with 2 per cent. silver nitrate solution is to be considered.

Meningitis Following Chronic Tympanitis.

DR. R. B. CANFIELD, Ann Arbor, presented this case with necropsy specimen showing spontaneous perforation of the temporal bone into the cranial cavity.

DR. C. S. OAKMAN, Detroit, said that the arterial degeneration found in this case, although the patient was young enough to be in school, pointed to chronic infection as a cause of arterial disease.

DR. T. S. CONOVER, Flint, said that the early removal of the adenoids in this case would probably have prevented all the later trouble.

Direct Tracheoscopy as an Aid to Diagnosis.

DR. J. E. GLEASON, Detroit, said that tracheoscopy is becoming constantly of more value in diagnosis, not only in determining disease in the air passages, but also lesions in the neck, which press on them. Direct laryngo-tracheoscopy, with the head extended, and the base of the tongue pressed forward, allows one to get the normal image of all structures, as contrasted with the indirect or mirror method, which gives a reversed image. He uses a 15 or 20 per cent. cocain solution in adults, but in children a general anesthetic is required. By means of direct tracheoscopy local medication can be applied and foreign bodies removed by the aid of direct vision.

New Apparatus for the Treatment of Fractured Patella.

DR. A. I. LAWBAUGH, Calumet, applies spiral strips of adhesive plaster on the front of the thigh to overcome the extensor muscles. The whole leg rests in an anterior wire splint, which is slung by oblique ropes at a comfortable elevation, in such a way as to exert traction against the thigh muscles. The spiral strips of plaster are connected by webbing or cord to the foot of the splint so that they exert a steady pull. This apparatus has the advantages of being clean, comfortable, efficient, and allowing constant access, without disturbance, to the injured part.

Opsonic Treatment in Surgical Practice.

DR. T. A. MCGRAW, Detroit, reported cases of phlegmon of hand and arm, retroperitoneal iliac abscess, suppurating bunions, suppurating appendicitis, infection of legs following compound fractures, all treated according to the opsonic therapy. There was marked improvement, in each instance, of the local condition, but it was rather striking that the general condition was sometimes worse—although not necessarily because of the treatment.

A Plea for the Prostate.

DR. E. C. TAYLOR, Jackson, said that hypertrophy of the prostate gives no symptoms, but when it causes symptoms of obstruction, nephritis and uremic poisoning, and when a reasonable trial of conservative measures fails to relieve, prostatectomy should be promptly undertaken.

DR. H. O. WALKER, Detroit, said that in spite of the greatest care the operation was sometimes followed by incontinence, fistula, increased cystitis and rectal fistula.

(To be continued.)

CONNECTICUT STATE MEDICAL SOCIETY.

One Hundred and Fifteenth Annual Meeting, held in Hartford, May 22-23, 1907.

(Concluded from page 2204.)

Recent Advances in the Study of Cancer, with Preliminary Note on a New Line of Investigation.

DR. J. MATHEW WAINWRIGHT, Scranton, Pa., said that recent studies in the general field of cancer work have shown that cancer is not confined to civilized peoples, but is to be found in all races. Of course, exact statistics are not possible to obtain in regard to the percentage affected in less civilized peoples. Cancer is not infrequently found in the domestic animals and also in all classes of vertebrates as low down as fishes, even in the wild state. It seems now that it is not proven that cancer is increasing, and also it is not proven that heredity is a factor. It seems definitely disproven that forests, climate, or other external factors, have any effect in the prevalence.

The older theories, including Cohnheim's, are fast losing ground. Bishford states that there is evidence to absolutely disprove all present theories. The theories now receiving most attention are, first, the theory of a parasitic cause, and, second, that the cause lies entirely within the cells themselves and is a perversion of the normal physiologic growth.

Those in favor of the parasite theory argue that the disease is increasing in a way that could not be accounted for except by infection. That infection is indicated by the increased presence of cancer in certain localities and certain homes. That there are cases where infection in small animals confined in an infected cage. That recovery from cancer is accompanied by immunity. That one of the alleged parasitic bodies or one soon to be discovered is it.

Those believing in the exaggeration of physiologic growth argue that 70 per cent. of cancers come in parts the subject of frequent injury, where there is more or less constant stimulation to growth and repair. That new cells in any tissue are not supplied by division of the functionating cells, but by mother cells, and cancer is due to an abnormal activity on the part of these mother cells. In advancing years the demand for functionating cells is lessened and the mother cells divide into cells retaining more nearly their normal type. They do not develop into cells with the power of function, but instead keep closer to the mother type, with greater reproductive processes, and finally assume the limitless growth known as cancer.

An experimental plan that may ultimately shed some light on the exaggerated physiologic growth lies in animals such as newts, frogs, salamanders and fishes which have the power of regeneration of parts after repeated amputation. The enormous stimulation to growth which such repeated amputations cause should, if the exaggerated growth theory has any foundation, some time lead to an overgrowth or cancer. Experiments undertaken with this view have so far proven negative, but are suggestive and are being continued.

Reduction of Dislocations.

DR. D. CHESTER BROWN, Danbury, gave in this paper his method of reducing dislocations. It aims to avoid muscle spasm, which is a cause of pain and an obstacle to the reduction of a dislocation.

Case of Avulsion of the Tubercle of the Tibia.

DR. SELDOM B. OVERLOCK, Pomfret, spoke of the rarity of this accident, which, according to Stimson, occurs in youths from 16 to 18 years of age, and is usually due to violent exertion, like jumping. The case he detailed was in a woman, aged 35, who was kicked by a horse while her leg was flexed on the thigh, the force of the blow being directed upward and backward, impinging on the tubercle of the tibia. The injury was repaired by drilling and nailing the fragment in place. Subsequently the leg and thigh were kept fixed in plaster for ten weeks. At the end of a year a perfectly useful limb resulted. It is a question, Overlock states, whether this should not be considered a fracture by direct violence rather than an avulsion by a force exerted through the ligamentum patellæ.

NORTH DAKOTA MEDICAL ASSOCIATION.

Annual Meeting, held at Minot, May 14-15, 1907.

The President, R. D. CAMPBELL, in the Chair.

The attendance was not up to the average, the experiment of going to the extreme northwestern portion of the state to interest the doctors who had previously not been identified with the state organization proved disappointing. The good feeling existing among those in attendance and the spirit of the discussions were excellent.

President's Address.

DR. R. D. CAMPBELL made the following suggestions: It is to be regretted that a large number of our physicians are still outside of the association. The association misses them and needs their assistance and support in furthering the good work and they, on their part, miss much from the lack of meeting with men of their own profession. Especially do they miss the broadening influence which arises from all scientific and social gatherings of this nature. There are in the State of North Dakota about 475 physicians. Of this number only 275 affiliate with the state association. It is to be hoped that in the near future every medical man in the state who is in good standing as a physician and a citizen, will avail himself of such membership. Medical men are beginning to take a much more prominent part in framing the laws of the Nation. In the last session of Congress there were four physicians, and in our state we were represented by two medical men in the upper house.

During the last two years the question of uniform medical legislation has received much attention and efforts are being made to make reciprocity between the different states general in the entire country. There seems, however, to be a great diversity of opinion in many of the states as to the extent of reciprocity granted. Some states will reciprocate only when the applicant has received his license by examination, thus excluding all practitioners who have been licensed by virtue of their previous status as practitioners in the state previous to the time of the enactment of the license laws. The State Board of Medical Examiners of this state has ruled that only those who have received their licenses since July 1, 1905, are entitled to reciprocate. This seems to me to be a very one-sided arrangement; the only one benefited is the recent graduate coming from other states, who is well qualified to take this examination, and does not offer any relief to the physician of this state, who for reasons of health or the health of some member of his family may wish to remove to another climate. It would seem that this reciprocal arrangement should be extended at least to all those who have taken an examination in their respective states where the standard of such examination is equally as high as that held in this state.

Life Insurance Examination Fees.

The association reaffirmed its position taken in 1906 relative to the fees for life insurance examinations, and authorized the secretary to have printed an official agreement in blank form to be furnished the secretaries of the local societies for distribution among the members; these blanks to be signed by the licensed physicians of the several localities and returned to the secretary to be filed. This agreement is expected to determine who are the loyal doctors, and settle a question of veracity between the physicians and insurance agents.

The agreement is as follows: I, as a licensed practitioner of North Dakota, hereby agree to maintain the fee bill adopted by the State Medical Association, to-wit: $5 for each ordinary examination, including urinalysis; $10 for each examination when microscopic examination of urine, sputum or other secretion is required; $3 for each certificate of health for renewal of lapsed policy.

Committee on Tuberculosis.

The committee on tuberculosis was continued, and an appropriation was made for the distribution of literature on the subject among the laity. The importance of taking active and energetic steps to check the ravages of the white plague was dwelt on, and the cooperation of the physicians throughout the state was earnestly solicited. The committee is composed of Drs. H. H. Healy, J. D. Taylor and James Grassick, superintendent of health.

The papers read were meritorious, and showed much care and research in their preparation and the discussion was spirited and received kindly.

The Kidney of Pregnancy.

DR. ZELLA WHITE STEWART presented the following conclusions: 1. The kidney of pregnancy is only a symptom of a toxic state. 2. The toxin which is responsible for this condition of the kidney is also the cause of the symptoms of the pre-eclamptic state and of eclampsia. 3. This toxin is either the result of a hepato-toxemia or is of placental origin, with the greatest evidence in favor of the latter. 4. The most constant pathologic changes are found in the liver and kidney, the changes in the former being more characteristic. 5. Premonitory symptoms of eclampsia are always present. 6. Since the condition of the kidney is only a symptom of the disease, an examination of the urine alone can not be relied on.

Eclampsia.

DR. A. J. MCCANNEL presented an exhaustive résumé of the subject and summed up the treatment of eclampsia as follows: The best way to treat the condition is to prevent it, if possible, and here as elsewhere, eternal vigilance is the price of liberty. When the condition does occur, do not expect one line of treatment to answer in every case, and do not overwhelm your patient with drugs, for all treatment of eclampsia is depressing and overtreatment may be worse than none at all. Until the etiology and pathology of eclampsia are definitely settled, no absolutely rational line of treatment can be laid down, but in the present state of our knowledge the three indications in treatment are: (1) to control the convulsions; (2) to eliminate the toxins, and (3) to empty the uterus at once with as little danger to the mother and child as possible.

Tubercular Cystitis.

DR. THOR MOELLER presented an ingenious treatment for this condition with fuchsin combined with methylene blue, and alluded to it as a probable specific in tuberculosis, by the staining and killing of the bacteria infecting the bladder. He cited several cases of increasing difficulty and pain in urination when tubercle bacilli were discovered that yielded promptly to the treatment.

Intussusception.

DR. J. D. WINDELL reported the history of a case in which he had made an end-to-end anastomosis with the Murphy button. The patient recovered.

Diagnosis of Gallstones.

DR. H. H. CHOWN, dean of the Medical School of Manitoba, urged that gallstones once diagnosed belong to the surgeon, and can only be removed rapidly and safely by operation. Their first dwelling place is in the gall bladder, and if removed before they have acquired the traveling mania or before they have started riotous uprisings in the neighborhood, the operation is an easy and safe one.

DR. FRED H. BAILEY and HENRY A. BEAUDOUX read papers, respectively, on the "Significance of Nasal Discharges" and "The Care and Treatment of Deep and Superficial Injuries of the Eyeball."

The physicians of Minot and vicinity furnished a sumptuous banquet on the evening of the first day's session, at which were gathered many of the prominent citizens and business men with their wives. The responses to the toasts were exceptionally good and the evening was a joyous one.

Officers Elected.

The following officers were elected to serve for the ensuing year: President, Dr. Charles McLachlan, New Rockford; vice-presidents, Drs. R. D. Campbell, Grand Forks; John E. Countryman, Grafton; H. A. Beaudoux, Fargo, and W. H. M. Philip, Hope; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. J. D. Taylor, Minot.

The next meeting will be held at Grand Forks, May 27-28, 1908.

Association News

SECTION TRANSACTIONS.

Explanation of the Bound Volumes of Proceedings of the Sections at the Annual Sessions.

Those who wish Transactions of any of the sections of the 1907, Atlantic City, session should order them at once. For the benefit of those who are not informed on the subject, it may be stated that the "Transactions" of a section of the American Medical Association contain the papers read before that section at the annual session, with illustrations and the discussions, and are bound in cloth, making a handsome volume for preservation in the library. The various sections are named on advertising page 4 of this issue. Each section volume is separate. Since only enough books are printed to supply the demand, many physicians, who have not attended the Association sessions, or who have neglected to send in their subscriptions before the books were published, have been disappointed in not being able to secure the Transactions desired. To avoid this, a permanent subscription list has been established, to the great satisfaction of all concerned. The books specified are sent to the subscriber each year without any further notification from him. Order may be cancelled when desired. Any one who wishes copies of these Transactions, either annually or of 1907 only, should write at once to the American Medical Association, 103 Dearborn Avenue, Chicago, and specify the books desired, stating also either "permanent list" or "1907 only." When the books are published, copies will be sent with a bill at $1 for each volume. If the books are not ordered in advance the price is $1.50 a volume. It should be noted that this announcement has nothing whatever to do with the paper-covered presessional reprints issued by some sections. Concerning these, correspond with the secretary of the section.

THE ATLANTIC CITY REGISTRATION.

List of Members and Guests Who Registered at the Atlantic City Session, June, 1907.

The total registration at the Atlantic City session was over 3,700. At Boston, in 1906, the registration was over 4,700, the largest in the history of the Association. Previous to that the record had been in 1904, at Atlantic City, 2,890.

In addition to the names below, of members and guests, a number registered whose names are not given. Some of these have not forwarded credentials for membership, some failed to sign the application blank, some names were not decipherable, etc.

Below are given two summaries, one by sections and one by states.

REGISTRATION BY SECTIONS.

Practice of Medicine	954
Obstetrics and Diseases of Women	299
Surgery and Anatomy	795
Hygiene and Sanitary Science	100
Diseases of Children	171
Ophthalmology	302
Stomatology	45
Nervous and Mental Diseases	141
Cutaneous Medicine and Surgery	86
Laryngology and Otology	183
Pharmacology and Therapeutics	52
Pathology and Physiology	69
Registered without specifying any one section	463

REGISTRATION BY STATES.

Alabama	22	Maine	23	Oklahoma	11
Arizona	3	Maryland	117	Oregon	5
Arkansas	12	Massachusetts	176	Pennsylvania	1,019
California	39	Michigan	93	Rhode Island	31
Colorado	31	Minnesota	29	South Carolina	19
Connecticut	69	Mississippi	5	South Dakota	6
Delaware	24	Missouri	72	Tennessee	38
Dist of Colum.	46	Montana	9	Texas	27
Florida	14	Nebraska	22	Utah	7
Georgia	30	New Hamp.	14	Vermont	21
Idaho	1	New Jersey	249	Virginia	40
Illinois	183	New Mexico	2	Washington	8
Ind. Territory	2	New York	560	West Virginia	55
Indiana	76	Nevada	2	Wisconsin	35
Iowa	61	North Carolina	31	Public Service	9
Kansas	13	North Dakota	4	Foreign (including Canada)	9
Kentucky	55	Ohio	213		
Louisiana	18				

Practice of Medicine.

Aaron, Charles D., Detroit, Mich.
McAboy, C. B., Pittsburg, Pa.
Acheson, Harry Martyn, Washington, Pa.
Adams, F. B., Rockland, Maine.
Adams, W. E., Madison, Ga.
Alkier, Stanislaw Joseph, Brooklyn, N. Y.
Allyn, H. B., Philadelphia, Pa.
Alter, J. G., New Kensington, Pa.
Ambler, C. P., Asheville, N. C.
Amerland, J. H., St. Louis, Mo.
Amster, L., Atlanta, Ga.
Anders, Howard S., Philadelphia, Pa.
Anders, James M., Philadelphia, Pa.
Anderson, Guy R., Barnesboro, Pa.
Anderson, Lewis Nostrand, Brooklyn, N. Y.
Anderson, William Edward, Farmville Va.
Andrews, J. H., Goshen, Ohio.
Arneill, James R., Denver, Colo.
Arnold, C. A., Allegheny, Pa.
Ash, John H., W. Quincy, Mass.
Ashcraft, Samuel F., Mullica Hill, N. J.
Ashford, Bailey K., Washington, D. C.
Atkins, J. C., Red Lion, Pa.
Atkinson, A. D., Baltimore, Md.
Atkinson, James A., Morehouse, Mo.
Bailey, Mark L., Carbondale, Pa.
Bailey, Samuel W., Ayr, Iowa.
Baker, F. Kline, Philadelphia, Pa.
Baker, Francis N., Media, Pa.
Bannan, Theresa, Syracuse, N. Y.
Bannister, Murdoch., Ottumwa, Iowa.
Bannon, H., Lawrence, Mass.
Banshach, J. J., St. Joseph, Mo.
Barbash, Samuel, Atlantic City, N. J.
Barker, James F., Albany, N. Y.
Barker, Llewellyn F., Baltimore, Md.
Barnum, R. E. L., Richland, Ga.
Barrett, Edward W., Medford, Mass.
Barshinger, M. L., York, Pa.
Bartlett, Clara K., Atlantic City, N. J.
Barton, E. W., Akron, Ohio.
Basch, Seymour, New York, N. Y.
Bassett, Henry Linn, Yardley, Pa.
Bastian, J. W., Wilmington, Del.
Bauer, Chas., Philadelphia, Pa.
Bauer, L. Demme, Philadelphia, Pa.
Beal, Frederick E., New York, N. Y.
Beardsley, E. J. G., Philadelphia, Pa.
Beck, Harvey G., Baltimore, Md.
Bee, A., Cairo, W. Va.
Begley, Baxter, Inglefield, Ind.
Bell, John M., St. Joseph, Mo.
Bellows, George A., Waterloo, N. Y.
Bemus, Wm. M., Jamestown, N. Y.
Benner, Charles T., Tiffin, Ohio.
Bennett, John W., Long Branch, N.J.
Bennett, Joseph M., Providence, R. I.
Bennett, R. M., Mound Valley, Kan.
Benson, David, Atlantic City, N. J.
Bettman, Henry Wald, Cincinnati, Ohio.
Bice, G. R., Walker, Iowa.
Bickerton, Alfred, New York, N. Y.
Bigelow, Enos H., Framingham, Mass.
Billings, Frank, Chicago, Ill.
Birney, H. H., Philadelphia, Pa.
Bishop, Fred J., Paterson, N. J.
Bishop, Louis F., New York, N. Y.
Black, Stanley P., Pasadena, Cal.
Blackburn, Elia, New Vienna, Ohio.
Blair, B. C., Lebanon, Ohio.
Blodgett, A. G., Ware Mass.
Bloomhardt, Fred H., Altoona, Pa.
Blount, Rufus F., Wabash, Ind.
Blunden, Wm., Paterson, N. J.
Boal, G. Fay, Freedom, Pa.
Boal, Geo. Y., Baden, Pa.
Bobe, C. S., Norman, Okla.
Boerstler, Geo. W., Lancaster, Ohio.
Bold, Valentine J., Philadelphia, Pa.
Bond, L. L., Dennison, Iowa.
Boston, L. Napoleon, Philadelphia, Pa.
Boucher, Richard P., Providence, R. I.
Bowcock, C. M., Springfield, Ill.
Bower, J. L., Reading, Pa.
Bowman, H. C., Mahanoy City, Pa.
Boyers, James S., Decatur, Ind.
Bozovsky, Vacil D., Dunkirk, N. Y.
Bradshaw, L. L., New York, N. Y.
Brannon, Thomas F., Rosemont, Pa.
Bronson, Wm. T., Danbury, Conn.
Brown, Ellen E., Chester, Pa.
Brown, Frank E., Baltimore, Md.
Brown, H. MacVeagh, Philadelphia, Pa.
Brown, Orlando J., No. Adams, Mass.
Brown, Otis S., Warren, Pa.
Brown, Philip King, San Francisco.
Brown, W. G., Plymouth, Mass.
Buckingham, Frederick S., Lakewood, N. J.
Bucklin, G. W., Muncie, Ind.
Buermann, William, Newark, N. J.
Bullman, W. S., New York, N. Y.
Burd, E., Lisbon, Iowa.
Burd, Wm. J., Belvidere, N. J.
Burdick, Alfred S., Chicago, Ill.
Burdick, Frank E., Providence, R. I.
Burckhardt, Louis, Indianapolis, Ind.
Burroughs, H. S., Pittsburg, Pa.
Burroughs, James, Asheville, N. C.
Buswell, Henry C., Buffalo, N. Y.
Butler, W. H., Fall River, Mass.
Buxton, W. E., West Salem, Ill.
Buzard, I. S., Russell, Iowa.
Cabot, Richard C., Boston, Mass.
Cadwallader, J. C., Norwood, Ohio.
Cairnes, Geo. H., Baltimore, Md.
Cameron, George A., Philadelphia.
Campbell, Donald, Butte, Mont.
Cassady, John B., Burlington, N. J.
Capwell, D. A., Scranton, Pa.
Carleton, Charles G., Lawrence, Mass.
Carlisle, Robert J., New York.
Carpenter, H. B., Philadelphia, Pa.
Carpenter, Lily F., Cincinnati, Ohio.
Carpenter, William H., Salem, N. J.
Carr, Lloyd Layan, New York.
Cathell, D. W., Baltimore, Md.
Celce, F. F., Holyoke, Mass.
Chamberlin, Edwin Crosby, New York.
Champlin, John, Westerly, R. I.
Chandlee, W. H., Philadelphia.
Chaney, H. M., Sardinia, Ohio.
Chapman, George L., Toledo, Ohio.
Chapoton, Edward A, Detroit, Mich.
Chase, Richard F., Boston.
Chatard, J. A., Baltimore, Md.
Chestnut, James C., Philadelphia.
Chew, E. C., Atlantic City, N. J.
Cheyney, Walter, Sonora, Ky.
Chittick, W. R., Detroit, Mich.
Christopher, F. E., Isney, Ala.
Clark, Colin R., Youngstown, Ohio.
Clark, H. E., Sheridansville, Pa.
Clarke, Claude V., Mt. Pleasant, Tenn.
Clarke, Robert C., Pittsburg, Pa.
Cleveland, F. Mortimer, Philadelphia.
Coble, T. J., Shelbyville, Tenn.
Coburn, Elwyn S., Plumstead Mills, Pa.
Cochran, L. B., Hartford, Conn.
Codman, Charles A. E., Philadelphia.
Coe, John W., New York.
Coffman, John J., Scotland, Pa.
Coggeshall, G. A., Oxford, N. C.
Cole, Albert T., Millersburg, Ohio.
Cole, Rufus I., Baltimore, Md.
Coleman, N. R., Columbus, Ohio.
Coleman, Thomas D., Augusta, Ga.
Comstock, Ira M., New York Mills, N. Y.
Congdon, W. O., Cuba, N. Y.
Conklin, Gustavus, Orwell, Pa.
Cook Frank B., Laurel Springs, N. J.
Cooley, Abbott L., Hoopeston, Mass.
Coons, J. J., Columbus, Ohio.
Cooper, Frank S., Glatto, W. Va.
Cooper, J. Cardeen, Philadelphia.
Cordell, Eugene F., Baltimore, Md.
Cormick, Boyd, San Angelo, Texas.
Cornell, Walter S., Philadelphia.
Cowen, Lewis C., Rising Sun, Ind.
Cox, James A., Morgantown, W. Va.
Crane, F. Marion, Pittsfield, Ill.
Crawford, James Rea, Philadelphia.
Crawford, John K., Cooperstown, Pa.
Critchfield, John B., Ralphton, Pa.
Croft, T. G., Ava, Ill.
Cruice, John M., Philadelphia.
Culworth, L. M., Perry, Mich.
Culp, Isaac J., Farmington, W. Va.
Cure, M. D., Weston, W. Va.
Custer, D. D., Philadelphia.
Da Costa, John C., Jr., Philadelphia.
Daggette, Alvin S., Pittsburg, Pa.
Dahl, L. A., Stanley, Wis.
Dameron, L. D., Phoenix, Ariz.
Dare, George S., Rising Sun, Ind.
Daugherty, C. G., Paris, Ky.
Davis, E. Webster, New York.
Davis, James D., Louisiana, Mo.
Davis, N. S., Chicago.
Davis, Sidney, Milton, Pa.
Davis, Thos. D., Pittsburg, Pa.
Van Deerlin, Henry J., Hoboken, N.J.
Dercum, Clara T., Philadelphia.
Despard, D. L., Philadelphia.
Dexter, Charles Amary, Columbus, Ga.
Dickes, John T., Portland, Ind.
Dickes, Philip, Greenville, Ohio.
Dickson, R. E., Holyoke, Mass.
Dierking, Albert W., Collitic, Ind.
Diverty, Henry B., Woodbury, N. J.
Dock, George, Ann Arbor, Mich.
Dodin, Henry A., New York.
Dolan, T. E., Elizabeth, N. J.
Donaldson, John B., Canonsburg, Pa.
Doolittle, Edgar B., Hazleton, Pa.
Dorris, Thos. B., Grapevine, Texas.

Daugherty, Sherborne W., Philadelphia.
Douglass, E. P., Groton, Conn.
Downing, Franklin Chace, Lanesboro, Mass.
Downs, A. S., Saratoga, N. Y.
Doubleday, Charles E., Penn Yan, N. Y.
Drake, R. L., Philadelphia.
Drawbaugh, J. H., Shiremanstown, Pa.
Drippe, J. H., Philadelphia.
Driscoll, Daniel M., Bridgeport, Conn.
Drummond, Winslow, Philadelphia.
Dubbs, J. H., Philadelphia.
Dubell, J. E., Columbus, N. J.
Duchein, Chas. F., Baton Rouge, La.
Duckworth, Milton, Carolina, R. I.
Dudley, S. B., Canton, Ohio.
Dunham, John Dudley, Columbus, O.
Duncan, Wm. E., Chicago.
Dunham, Kenneth, Cincinnati, Ohio.
Dunlap, Thomas G., Atlantic City, N. J.
Duttera, Walton Forest, Walkers Mills, Pa.
Eastman, H. A., Jamestown, N. Y.
Eckman, Philip N., Philadelphia.
Edsall, David L., Philadelphia.
Eddy, W. L., Milan, Ill.
Edwards, H. T., South Bethlehem, Pa.
Edwards, J. Gaunt, Williamstown, N. J.
Egbert, Joseph C., Wayne, Pa.
Eirley, Clara S., Hagerstown, Md.
Elden, Roswell T., Altoona, Pa.
Ellinger, F. J., Philadelphia.
Elliott, Arthur R., Chicago.
Elliott, John B., Jr., New Orleans, La.
Ellis, Charles M., Elkton, Md.
Elmer, William, Trenton, N. J.
Elsner, Henry L., Syracuse, N. Y.
Elwell, Alfred M., Camden, N. J.
Ely, William S., Rochester, N. Y.
Emery, Chas H., Bedford, Ind.
Emery, Z. Taylor, New York.
England, Albert C., Pittsfield, Mass.
Einhorn, Max, New York.
Erdman, William B., Macungie, Pa.
Erdman, William S., Buckingham, Pa.
Evans, Charles W., Springfield, Ohio.
Evans, D. W., Scranton, Pa.
Evans, Frank B., Des Moines, Iowa.
Evens, Arthur E., Atlantic City, N. J.
Ewing, James B., Uniontown, Pa.
Ewing, William B., West Grove, Pa.
Fahrney, Marshal, Baltimore, Md.
Fairbanks, James R., Amsterdam, N. Y.
Faries, Clarence T., Narberth, Pa.
Farley, Joseph, Philadelphia.
Farnum, Charles George, Brimfield, Ill.
Farrington, John M., Binghamton, N. Y.
Fassett, Chas. Wood, St. Joseph, Mo.
Feinberg, Sol E., Scranton, Pa.
Ferris, Francis S., Philadelphia.
Fiet, Harvey J., Philadelphia.
Fiber, C. C., Cincinnati, Ohio.
Fish, Clyde M., Pleasantville, N. J.
Flick, Harry W., Bridgeport, Conn.
Flegal, I. S., Karthaus, Pa.
Flint, Fred S., Rockville, Conn.
Fly, Edward M., National City, Cal.
Freiz, Alfred E., Sellersville, Pa.
Foltz, J. Clinton, Philadelphia.
Foote, Charles J., New Haven, Conn.
Ford, Starr, Cincinnati, Ohio.
Forsyth, C. B., Alexandria Bay, N. Y.
Foster, W. S., Pittsburg, Pa.
Francine, Albert Philip, Philadelphia, Pa.
Franklin, W. T., Orange, La.
Frantz, C. J., Warren, Pa.
French, Howard T., Deep River, Conn.
Frey, J. H., Cheap Hill, Tenn.
Friedenwald, Julius, Baltimore, Md.
Fronfield, J. Harvey, Media, Pa.
Fry, H. M., Rush, Pa.
Fuller, O. F., Monson, Mass.
Fulton, Z. M. K., Philadelphia.
Furman, Davis, Greenville, S. C.
Gaddis, Levi S., Uniontown, Pa.
Gaither, Ernest H., Baltimore, Md.
Gallagher, Morton, Bay City, Mich.
Gardiner, Charles F., Colorado Springs, Colo.
Garlock, Wm. D., Little Falls, N. Y.
Gaston, Ida E., Philadelphia, Pa.
Geisler, Howard D., Philadelphia, Pa.
Gerhard, Saml. P., Philadelphia, Pa.
Gibbs, L. J., Chicopee, Mass
Gifford, John H., Fall River, Mass.
Gilbert, O. M., Boulder, Colo.
Gildersleeve, John R., Richmond, Va.
Gillette, Arthur A., Rome, N. Y.
Gilmon, W. F., Lisbon, Ohio.
Githens, Thos. S., Atlantic City, N.J.
Glover, Oliver W. H., Laurelton, Pa.
Godfrey, E. L. R., Camden, N. J.
Godfrey, Henry G., Philadelphia.
Goepp, R. Max, Philadelphia.
Goff, Waldo Percy, Clarksburg, W.Va.
Gompertz, Louis M., New Haven, Conn.
Good, A. P., Philadelphia.
Goodman, Edward H., Philadelphia.
Goodwin, Ralph S., Thomaston, Conn.
Goodwin, T. F., Mt. Vernon, N. Y.
Goodyear, Miles D., Groton, N. Y.
Gordon, Altamont L., Burlington, N. J.
Gordon, J. W., Belle Vernon, Pa.
Gorgas, W. C., U. S. Army.
Gorter, Nathan R., Baltimore.
Goss, Charles, Philadelphia.
Graber, C. Lee, Cleveland, Ohio.
Graeber, F. J., Stockport, Iowa.
Gray, T. N., East Orange, N. J.
Groff, J. W., Harleysville, Pa.
Grandy, Charles R., Norfolk, Va.
Gray, D. F., Providence, R. I.
Green, Edgar Moore, Easton, Pa.
Green, George D., Lock Haven, Pa.
Green, James H., North Vernon, Ind.
Greenbaum, Harry S., Baltimore.
Greene, C. W., Binghamton, N. Y.
Greene, E. B., Chicago.
Greene, Ray W., Worcester, Mass.
Greenley, T. B., Meadow Lawn, Ky.
Griffin, Charles E., Fair Haven, Vt.
Grigsby, C. M., Kaufman, Tex.
Grim, G. M., Ottsville, Pa.
Griscom, Mary W., Philadelphia.
Grosh, Lawrence C., Toledo, Ohio.
Grover, John B., Peckville, Pa.
Guthrie, D. Clinton, Philadelphia.
Gutshall, Frank A., Blain, Pa.
Hagadorn, J. Lee, Los Angeles, Cal.
Hagadorn, J. M., Saginaw, Mich.
Hagadorn, Mary E., Pasadena, Cal.
Hahn, E., Leetonia, Ohio.
Haig, Charles R., Philadelphia.
Hall, Joseph, Westfield, Ill.
Hall, J. N., Denver, Colo.
Hall, Walter E., Burlington, N. J.
Hall, William Thomas, Pittsburg, Pa.
Halsey, John T., New Orleans, La.
Halsey, L. M., Williamstown, N. J.
Hamburger, Louis P., Baltimore, Md.
Hamilton, J. H., Union, S. C.
Hamilton, Ralph A., Washington, D. C.
Hannum, J. W., Lindlow, Mass.
Happel, T. J., Trenton, Tenn.
Hare, H. A., Philadelphia.
Harkey, William Cathey, Gardner, Kan.
Harrington, James L., New London, Conn.
Harrington, Michael W., Indian Orchard, Mass.
Harris, H. F., Atlanta, Ga.
Harris, Levy I., Syracuse, N. Y.
Harris, Lurty Noel, Mill Creek, W. Va.
Hartford, P. C., E. Palestine, Ohio.
Hartman, Frank T., Waterloo, Iowa.
Hartman, Irvin H., Reading, Pa.
Hartman, W. F., Saxonpe, Va.
Harvey, Edwin H., Atlantic City, N. J.
Harwood, W. E., Eveleth, Minn.
Hatcher, John G., Reno, Okla.
Hatfield, Charles J., Philadelphia.
Hayford, Ernest L., Chicago.
Heard, James L., North East, Pa.
Heilman, R. F., Emporium, Pa.
Heller, I. M., New York.
Helwig, Frank A., Akron, N. Y.
Henry, Frederick P., Philadelphia.
Henry, J. Norman, Philadelphia.
Henry, John P., New York.
Henry, William P. S., Everett, Pa.
Heritage, Chas. S., Glassboro, N. J.
Herrick, James R., Chicago.
Hershey, George B., Gap, Pa.
Hertz, J. L., Lititz, Pa.
Hewett, Adelbert, Saratoga Springs, N. Y.
Hickman, Napoleon, Philadelphia.
Hickman, Walter Atlee, Atlantic City, N. J.
Hiebee, William S., Philadelphia.
Hilla, Charles E., So. Natick, Mass.
Hinsdale, Guy, Hot Springs, Va.
Hirsh, A. B., Philadelphia.
Hirschfelder, Arthur D., Baltimore, Md.
Hoban, C. J., Philadelphia.
Hobson, Abraham J., Hampton, Ia.
Hobson, Thomas A., Parkersburg, Ia.
Hofstetter, G. A., Corsicana, Texas.
Holcombe, Lomax C., Milton, Vt.
Holden, Timothy N., New York.
Holder, R. E., Columbus, Ind.
Holland, P. C., Bloomington, Ind.
Hollingshead, Enoch, Pemberton, N. J.
Hollister, F. P., Scranton, Pa.
Holmes, W. W., Keokuk, Iowa.
Holton, David C., Brooklyn, N. Y.
Holtzapple, G. E., York, Pa.
Hoole, Lester Page, Brooklyn, N. Y.
Hoopes, W. H., Newport, Pa.
Hoover, C. F., Cleveland, Ohio.
Hornback, J. L., Catasauqua, Pa.
Horne J. A., Philadelphia.
Horner, Joseph A., Hot Springs, Ark.
Hoskins, Percy C., West Chester, Ill.
Hough, Frank P., Binghamton, N. Y.
Howard, J. Edgar, Haddonfield, N. J.
Howell, J. Morton, Dayton, Ohio.
Huber, John Boomer, New York.
Huffaker, R. O., Chuckey, Tenn.
Hull, A. P., Montgomery, Pa.
Hultgen, J. F., Chicago.
Humphrey, G. E., Cambridge Springs, Pa.
Humphrey, W. J., Union City, Pa.
Hunter, J. Ross, Marting, W. Va.
Hurd, Edward F., New York City.
Hutchison, William Sterling, Pittsburg, Pa.
Hutchison, James C., Troy, N. Y.
Hutchinson, Woods, New York.
Huyck, Emory B., Oak Harbor, Ohio.
Hyde, E., Chicago.
Ilman, G. Morton, Philadelphia.
Isaacs, L. J., Chicago.
Jack, Cecil M., Decatur, Ill.
Jacoba, L. C., San Francisco.
James, Henry C., Mays Landing, N. J.
Janeway, Edward G., New York.
Jarrett, H. S., Towson, Md.
Jefferis, D. W., Chester, Tenn.
Jenks, Harrison D., Detroit, Mich.
Jennings, W. B., Haddonfield, N. J.
Jennings, Walter B., New York.
Johnson, Franklin, Jeffersonville, Ky.
Johnston, James L., Pittsburg, Pa.
Johnson, P. S., Richmond, Ind.
Johnson, W. S., Philadelphia.
Johnson, William C., Lowell, Mass.
Jones, Allen A., Buffalo, N. Y.
Jones, Clement R., Pittsburg, Pa.
Jones, Phillip Mills, San Francisco.
Jones, Rhys F., Clayton, Ind.
Jonson, Christian, Clinton, Iowa.
Joy, J. Addison, Atlantic City, N. J.
Judy, C. S., Miamisburg, Ohio.
Jump, Henry D., Philadelphia.
Kahle, George D., French Lick Springs, Ind.
Kaltezer, Fred J., Philadelphia.
Karreles, Maurice Joseph, Philadelphia.
Kaufmann, Jacob, New York.
Keefe, Daniel F., Springfield, Mass.
Keever, B. W. Dudley, Centerville, O.
Kelley, Ernest J., Chandlers Valley, Pa.
Kelly, Francis J., Philadelphia.
Kemper, G. W. H., Muncie, Ind.
Keogh, John V., Dubuque, Iowa.
Kerns, S. S., Philadelphia.
Kerr, William E., Steubenville, Ohio.
Kibler, James M., Newberry, S. C.
Kice, H. W., Wharton, N. J.
Kimberlin, A. C., Indianapolis, Ind.
Kimmell, John F., Cincinnati, Ohio.
Kincaid, James W., Catlettsburg, Ky.
King, H. O., Curwensville, Pa.
King, Joseph M., Los Angeles, Cal.
Kinsman, D. N., Columbus, Ohio.
Klonka, Paul R., Melrose Park, Ill.
Kirk, J. W., Oblong, Ill.
Kistler, George B., Newcomerstown, Ohio.
Kistler, Edwin H., Lansford, Pa.
Kite, Walter C., Milton, Mass.
Klaus, E., Cleveland, Ohio.
Klemm, Adam, Philadelphia.
Kline, C. P., Portsmouth, Ohio.
Klopp, Peter P., Philadelphia.
Knapp, D. M., Mendon, Ill.
Knapp, Harry R., Philadelphia.
Knauf, Nicholas J., Clifton, Wis.
Knight, Arthur L., Cincinnati, Ohio.
Knowles, G. A., Philadelphia.
Kollock, H. G. M., Newark, Del.
Koons, Philip Rankin, Mechanicsburg, Pa.
Koons, Ralph F., El Reno, Okla.
Kunkel, Henry, Wilkes-Barre, Pa.
Kurtz, C. S., Malvern, Pa.
Lambert, Alexander, New York.
Langfitt, W. J., Allegheny, Pa.
Langholz, H., Oak Harbor, Ohio.
Lantz, Percival, Alaska, W. Va.
Larkin, Albert E., Syracuse, N. Y.
Larned, Ezra Read, Chicago.
Latham, H. W., Latham, Mo.
Latimer, Guy W., Hyattsville, Md.
Lauderdale, Walter E., Genesco, N.Y.
Laughlin, Mary A., Hagerstown, Md.
Lawrence, Geo. W., Lakewood, N. J.
Lawrence, R. G., Hammondsport, N. Y.
Laws, George C., Paulsboro, N. J.
Lawton, F. L., Hartford, Conn.
Large, O. P., Philadelphia.
Leavitt, R. H., Terre Haute, Ind.
Leech, D. Olin, Washington, D. C.
Leitzell, P. W., Portland Mills, Pa.
Le Roy, Irving D., Pleasant Valley, N. Y.
Le Seur, J. W., Batavia, N. Y.
Lester, F. W., Seneca Falls, N. Y.
Lewis, Dorsey W., Middletown, Del.
Lewis, W. H., Donora, Pa.
Lichty, John Alden, Pittsburg, Pa.
Lichty, M. J., Cleveland, Ohio.
Lindeman, C. E., Pittsburg, Pa.
Linebaugh, H. W., New Cumberland, Pa.
Litchfield, Lawrence, Pittsburg, Pa.
Littell, Elton Gardner, Poughkeepsie, N. Y.
Little, Wilbur T., Canon City, Colo.
Livingston, G. M., Manistique, Mich.
Logan, W. A., Lehigh, Okla.
Leonard, I. E., Atlantic City, N. J.
Love, Geo. T., Dana, Ill.
Lowe, F. F., Madison, Neb.
Loose, D. N., Maquoketa, Iowa.
Loughridge, Samuel S., Philadelphia.
Love, Frank W., Buffalo, N. Y.
Lowber, Alex., Wilmington, Del.
Lower, J. D., Coshocton, Ohio.
Lucas, Charles G., Louisville, Ky.
Luce, Charles R., Washington, D. C.
Ludlum, Chas. L., Hempstead, N. Y.
Lull, Cabot, Birmingham, Ala.
Lundgren, C. E., Harris, Minn.
Lutz, H. L., Philadelphia.
Lyell, R. L., Warsaw, Va.
Lyles, A. R., Virginia, Ill.
McAlister, John B., Harrisburg, Pa.
McCaskey, G. W., Ft. Wayne, Ind.
McClain, W. A., Gettysburg, Ind.
McCollin, S. Mason, Philadelphia, Pa.
McCorkle, W. P., Sheradenville, Pa.
McCormick, Horace G., Williamsport, Pa.
McDevitt, Charles H., Philadelphia.
McDonald, W. B., Baltimore, Md.
McDowell, H. F., Franklin, Pa.
MacFarlane, Andrew, Albany, N. Y.
Macfarland, Frank H., Philadelphia.
McGahan, C. F., Aiken, S. C.
McGavran, Chas. W., Columbus, O.
McGlenn, J. A., Mt. Pleasant, Ohio.
MacGuire, Const. J., New York.
McGuire, James J., Trenton, N. J.
McGuire, M. F., Montpelier, Vt.
McIlhaney, Wm. H., Easton, Pa.
McIlmoyle, H. A., Cedensburg, N. Y.
McKean, Geo. E., Detroit, Mich.
McKenzie, Wm., Conshohocken, Pa.
McKinnon, Charles L., McKees Rocks, Pa.
McLean, John D., Philadelphia.
McNamara, William E., Freda, Mich.
McParlan, John P., New York.
Mackintosh, M. A., Paterson, N. J.
Madison, D., Milwaukee, Wis.
Mahady, C. R., Rome, N. Y.
Malaun, M. E., Carbondale, Pa.
Mallet, Orita, Troy, N. Y.
Mann, E. S., Dallastown, Pa.
Mansfield, James A., Boston.
Marchand, J. F., Canton, Ohio.
Marcy, Alex., Jr., Riverton, N. J.
Marsden, Henry L., Somerset, Pa.
Marshall, George W., Milford, Del.
Martin, R. R., Merwin, Mo.
Martin, William, Bristol, Pa.
Marvel, Philip, Atlantic City, N. J.
Mather, H. H., Chicago.
Mathewson, W., Bath, N. Y.
Matlock, Clarence E., Steelville, Mo.
Matthews, M. F., Athens, Ga.
Maxwell, C. H., Morgantown, W. Va.
May, A., Crestmore, Ind.
Mead, Harry, Buffalo, N. Y.
Megargee, Geo. L., Philadelphia.
Meltzer, S. J., New York.
Mercur, Wm. H., Pittsburg, Pa.
Merkle, Albert E., Carston City, Nev
Merrill, B. E., Dents Run, Pa.
Mershach, Joseph, Brooklyn, N. Y.
Metcalf, H. M., Elyria, Ohio.
Metzler, Victor W., Atlantic City, N. J.
Meyer, Alfred, New York.
Middleton, Wm. J., Steelton, Pa.
Miesse, Kate DeWitt, Easton, Pa.
Miles, Horace, Webster Groves, Mo.
Milan, M. R., Providence, R. I.
Miller, A. I., Brattleboro, Vt.
Miller, C. D., Pottsville, Pa.
Miller, DeWitt Clinton R., Mason and Dixon, Pa.
Miller, John B., Harrisburg, Pa.
Miller, Laird O., Allegheny, Pa.
Miller, William W., Gotebo, Okla.
Millikin, C. W., Akron, Ohio.
Millikin, Mark, Hamilton, Ohio.
Millikin, T. N., Waynesburg, Pa.
Mills, O. P. M., Grant City, Mo.

Milnamow, J. T., Chicago.
Minor, Charles L., Asheville, N. C.
Minor, O. Raymond, Louisville, Ky.
Mix, Charles Louis, Chicago.
Monroe, Nathan A., Syracuse, N. Y.
Mooney, Edward J., Syracuse, N. Y.
Moore, Albert H., Ashland, Ky.
Moore, Hugh M., Oxford, Ohio.
Moorehouse, G. W., Cleveland, Ohio.
More, C. W., Eveleth, Minn.
Morgan, A. C., Philadelphia.
Morris, Joseph P., St. Clair, Pa.
Morris, Wm. E., Lisbon, Ohio.
Morrissey, John J., New York.
Morrison, Robert, Sheridansville, Pa.
Morrow, E. O., Canton, Ohio.
Morrow, H. Wilson, Swissvale, Pa.
Mosher, Clelia Duel, Palo Alto, Cal.
Moulton, Milo W., Bellevue, Iowa.
Mowery, J. L., Lancaster, Pa.
Moyer, S. R., Monroe, Wis.
Moylan, J. J., Philadelphia, Pa.
Moylan, M., Philadelphia.
Mudgett, John H., Philadelphia.
Muench, William G., Syracuse, N. Y.
Mullarky, Hugh, Manson, Iowa.
Mullarky, W. G., Cedar Falls, Iowa.
Mulligan, Wesley T., Rochester, N. Y.
Murphy, Franklin E., Kansas City, Mo.
Musser, John H., Philadelphia.
Myers, Albert William, Milwaukee, Wis.
Nearry, P. M., Cortland, N. Y.
Neer, Henry C., Park Ridge, N. J.
Neier, O. C., Indianapolis, Ind.
Neill, William, Charlestown, W. Va.
Neilson, W. H., Milwaukee, Wis.
Nelson, Audley E., Sentinville, Iowa.
Nelson, Stuart W., Old Forge, N. Y.
Nettleton, Francis I., Shelton, Conn.
Newcomb, M. W., Burlington, N. J.
Nichols, Hebard B., Pulteney, N. Y.
Nock, Thos. O., Philadelphia.
Norris, George W., Philadelphia.
Northrup, A. H., Markle, Ind.
Northrup, S. S., St. Paul, N. C.
O'Connor, John H., Hyde Park, Mass.
Olmstead, D. S., Millersburg, Ohio.
Osmond, Anna R., Philadelphia.
Otis, L. J., Grand Rapids, Mich.
Oyster, L. C., Lumberport, W. Va.
Page, Henry F., Philadelphia.
Palm, Howard F., Camden, N. J.
Palmer, A. H., Marlboro N. Y.
Palmer, Elbert A., Saratoga Springs, N. Y.
Palmerton, R. K., Cannonsville, N. Y.
Parker, G. A., Southampton, Pa.
Parrish, Henry, Philadelphia.
Parsons, R. H., Mt. Holly, N. J.
Patrick, Ellwood, West Chester, Pa.
Pattee, W. H., Manchester, N. H.
Patterson, Ross V., Philadelphia.
Paul, Thomas Morrison, St. Joseph, Mo.
Paulen, David, Hinsdale, Ill.
Peables, A. M., Auburn, Maine.
Pearson, D. M., Louisiana, Mo.
Pearson, M. M., Bristol, Tenn.
Peck, Albert F., Spencer, Mass.
Peck, Welland S., Scranton, Pa.
Pemberton, Ralph, Philadelphia.
Pepper, W. L., Philadelphia.
Pepper, William, Philadelphia.
Petith, Albert, Pittsburg, Pa.
Pfaff, Otto, Oneida, Ill.
Pfahler, G. E., Philadelphia.
Phromm, George W., Philadelphia.
Phelps, Robt. H., Norwich, N. Y.
Phillips, M. O., Fremont, Ohio.
Philo, D. W., Woodville, Ohio.
Pierson, John C., Hartford, Conn.
Pietrowicz, Stephen R., Chicago.
Pitcher, Herbert F., Haverhill, Mass.
Pleasants, J. Hall, Baltimore.
Plummer, H. S., Rochester, Minn.
Pohl, H. C., Navarre, Pa.
Pomeroy, Nelson A., Waterbury, Conn.
Pope, Geo. C., Ottumwa, Iowa.
Porch, F. H., Philadelphia.
Porch, H. R., Johnstown, Pa.
Porter, D. R., Kansas City, Mo.
Porter, H. L., Seneca, Mo.
Post, Chas. D., Syracuse, N. Y.
Potter, W. Bowditch, New York.
Potter, Theodore, Indianapolis, Ind.
Pratt, Charles S., Brattleboro, Vt.
Pratt, John H., Manchester, N. Y.
Preble, Robert, Chicago.
Prestrey, Silas Dean, Taunton, Mass.
Price, F. Fraley, Carbondale, Pa.
Priestley, Jas. Taggart, Des Moines, Iowa.
Purnell, Howard, Bristol, Pa.
Putnam, F. D., Auburn, N. Y.
Putney, James, Charleston, W. Va.
Quinn, William A., Chewsville, Md.
Rahter, C. A., Harrisburg, Pa.
Rankin, Thos. W., Columbus, Ohio.
Rea, Charles, York, Pa.
Reed, Arthur P., Geneseo, N. Y.
Reese, J. Mitchell, Phillipsburg, N. J.
Reiley, Edward A., Atlantic City, N. J.
Reynolds, J. C., Lake Geneva, Wis.
Reynolds, Walter, Atlantic City, N. J.
Rhein, Robert D., Philadelphia.
Rich, Herbert Lowne, Port Deposit, Md.
Richards, Florence Harvey, Philadelphia.
Richmond, W. W., Clinton, Ky.
Rickert, C. M., Harrisburg, Pa.
Riddle, Adeline, Oshkosh, Wis.
Ridgway, Wm. F., Atlantic City, N. J.
Rinpath, R. F., Philadelphia.
Riegel, Henry L., Catasauqua, Pa.
Roberts, Frederick C., Easton, Pa.
Roberts, H. H., Lexington, Ky.
Robertson, H. L., Ward, W. Va.
Robinson, Ernest F., Kansas City, Mo.
Robson, J. A., Hall's Corners, N. Y.
Rodman, W. E., Hodgenville, Ky.
Roebuck, J. Paul, Lititz, Pa.
Rogers, Henry C., Cleveland, Ohio.
Rogers, Edw. B., Collingswood, N. J.
Rohrer, T. M., Quarryville, Pa.
Rolls, James A., Watrous, N. M.
Root, Edward K., Hartford, Conn.
Rosenkranz, J. H., Hoboken, N. J.
Roughlin, Louis C., Atlanta, Ga.
Rousseau, L. Zotique, Troy, N. Y.
Roussel, Albert G., Philadelphia.
Royer, B., Franklin, Philadelphia.
Ruff, William F., Philadelphia.
Runkle, Stuart C., Philadelphia.
Russell, Edward E., North Adams, Mass.
Rutherford, J. E., Straight, Pa.
Sailer, Joseph, Philadelphia.
Salibi, M. M., Savannah, Ga.
Sanford, Merton J., Suffern, N. Y.
Sapp, Clinton E., South Omaha, Neb.
Satterlee, Albert R., Buffalo, N. Y.
Sauer, J. George, New York.
Sautee, G. O. O., Owensna, Pa.
Sawyer, Frank W., Castle Hot Springs, Ariz.
Sawyer, John P., Cleveland, Ohio.
Sazer, Leonard A., Syracuse, N. Y.
Schaufler, William Gray, Lakewood, N. J.
Scheitz, John E., Edwardsdale, Pa.
Schmidt, Marie, Chicago.
Schock, Harvey E., Philadelphia.
Scott, George, Atlantic City, N. J.
Scott, S. H., Coatesville, Pa.
Seiberling, Fred C., Allentown, Pa.
Seibert, J. L., Bellefonte, Pa.
Seiple, Samuel C., Center Square, Pa.
Seymour, W. H., Charles City, Iowa.
Shallcross, W. G., Pittsburg, Pa.
Sharp, Ezra B., Camden, N. J.
Sharpe, Frank M., Brooklyn, N. Y.
Sharpless, William T., West Chester, Pa.
Shaw, Clayton E., Hoosick Falls, N. Y.
Shearer, James T., Sinking Spring, Pa.
Sheldon, Charles S., Madison, Wis.
Shellenberger, J. R., Philadelphia.
Shellito, A. G., Independence, Iowa.
Sherman, Paul, Shawneetown, Ill.
Shields, D. E., Morristown, Tenn.
Shimer, H. Burton, Atlantic City, N. J.
Slingerland, I. M., Fayetteville, N. Y.
Sickler, E. H., New Baltimore, Mich.
Silliman, J. E., Erie, Pa.
Simmons, J. Gorse, New York.
Simonson, A. R., Calumet, Mich.
Sitler, W. R., Suffern, N. Y.
Slater, C. R., Erlanger, Ky.
Smith, C. Urban, Baltimore, Md.
Smith, D. G., Elizabeth, Ill.
Smith, E. Franklin, New York.
Smith, Frank C., Fleming, N. Y.
Smith, George C., Boston, Mass.
Smith, H. Boydston, Philadelphia.
Smith, Henry O., Hudson Center, N. H.
Smith, J. Gardner, New York.
Smith, Joseph J., New York.
Smith, Julian C., Oneonta, N. Y.
Smith, W. G., Ravenna, Ohio.
Snipe, Langdon T., Bath, Maine.
Snow, F. E., Batavia, N. Y.
Sola-Cohen, Myer, Philadelphia, Pa.
South, John, Ouray, Colo.
Southworth, Chas. T., Monroe, Mich.
Sowder, Chas. R., Indianapolis, Ind.
Spaulding, Frank W., Clifton Springs, N. Y.
Spitler, S. W., Wellington, Kan.
Springer, Willard, Wilmington, Del.
Stahl, Alfred, Newark, N. J.
Stahl, B. Franklin, Philadelphia.
Stanecf, D., Chicago.
Stanhope, A. H., Dover, Maine.
Stanton, T. P., Chariton, Iowa.
Stark, Henry S., New York.
Starke, G. H. E., New York.
Steele, J. Dutton, Philadelphia.
Stegner, Adam, Rendham, Pa.
Steinke, Hermann C. O., Brooklyn, N. Y.
Stengel, Alfred, Philadelphia.
Stevens, M. L., Asheville, N. C.
Stevenson, Alexander F., Chicago.
Stevenson, John R., Haddonfield, N. J.
Stewart, Charles W., Salt Lake City, Utah.
Stilley, V. A., Benton, Ky.
Stillwagon, Philip Eugene, Bridgeport, N. J.
Stix, Walter H., Cincinnati, Ohio.
Stockdale, T. F., Rural Valley, Pa.
Stokes, Joseph, Moorestown, N. J.
Storer, Chas., Amsterdam, N. Y.
Stout, Harry A., Wenonah, N. J.
Stover, A. R., Little Rock, Ark.
Strickler, Albert W., Scottdale, Pa.
Strietmann, W. H., Cincinnati, Ohio.
Stroud, Frank G., Moorestown, N. J.
Strouss, U. S., Beaver, Pa.
Summerill, J. M., Penns Grove, N. J.
Swan, John M., Philadelphia.
Swaney, A. G., Lee's Summit, Mo.
Taylor, J. E., Rockland, Pa.
Taylor, J. Gurney, Philadelphia.
Taylor, L. B., Washington, D. C.
Taylor, Lewis C., Springfield, Ill.
Terry, G. H. B., Wyalusing, Pa.
Thomas, E. G., Benton, Ky.
Thomas, Frank Inter, Philadelphia.
Thomas, J. Quincy, Conshohocken, Pa.
Thomas, John D., Washington, D. C.
Thompson, W. Gilman, New York.
Thornhill, G. T., Herndon, W. Va.
Toornton, Wm. H., Buffalo, N. Y.
Thurston, D. M., Beeville, Texas.
Tileston, Wilder, Boston.
Timmerman, C. T., Amsterdam, N. Y.
Tindall, Wm. J., Williamstown, Vt.
Tinney, R. M., Norwin, Kan.
Tolles, F. R., Lafayette, La.
Towsley, William D., Camden, N. Y.
Traver, S. N., Steelton, Pa.
Trice, Wm. G., Axtell, Texas.
Tucker, Henry, Philadelphia.
Tukey, Frank M., Bridgeport, Conn.
Turner, Matthew L., Des Moines, Ia.
Turner, S. T., El Paso, Texas.
Tyson, James, Philadelphia.
Ullman, Julius, Buffalo, N. Y.
Ullom, Josephus L., Germantown, Pa.
Unger, D. F., Mercersburg, Pa.
Unger, J. W., West Point, Miss.
Upshur, J. N., Richmond, Va.
Urquhart, J. E., Ashfield, Mass.
Van Allen, Harvey W., Springfield, Mass.
Vanderhoof, F. D., Phelps, N. Y.
Van Derveort, C. A., Philadelphia.
Van Dyke, Arthur D., Marysville, Pa.
Van Gasken, Frances C., Philadelphia.
VanKorh, Wm., Philadelphia.
Van Sickle, F. L., Olyphant, Pa.
Varner, S. W., Glenville, W. Va.
Vickers, F. D., Canajoharie, N. Y.
Waddington, B. A., Salem, N. J.
Wade, John W., Millville, N. J.
Wadsworth, J. E., Skowhegan, Me.
Wagner, Henry E., Chicago.
Wagoner, A. L., Scottsville, Ky.
Wahrer, C. F., Ft. Madison, Iowa.
Wainwright, Chas. W., Princess Anne, Md.
Wakefield, Homer, New York.
Wakeman, B. R., Hornell, N. Y.
Walker, J. B., Effingham, Ill.
Walker, Robert J., Chicago.
Walker, Samuel J., Chicago.
Waller, W. H., Angola, Ind.
Wallis, J. Edw., Philadelphia.
Walsh, Joseph, Philadelphia.
Warden, Alfred R., Grafton, W. Va.
Warren, G. A., Black Rock, Ark.
Warthen, W. B., Bartow, Ga.
Wasdin, Eugene, Memphis, Tenn.
Watson, Wm. T., Baltimore, Md.
Way, Eugene, Pennsville, Ind.
Weidner, Calvin, Manchester, Conn.
Weir, L. J., Marshall, Ill.
Weir, Silas W., West Union, Ill.
Welch, Edward H., Winsted, Conn.
Welch, H. E., Youngstown, Ohio.
Welker, Franklin, New York.
Wenrich, Geo. G., Wernersville, Pa.
Wentz, A. C., Hanover, Pa.
Wentz, H. F., Philadelphia.
Werfelmann, Walter J., Syracuse, N. Y.
Wert, A. K., Oklahoma City, Okla.
Wert, B. S., Chattanooga, Tenn.
Weston, H. R., Windsor, Vt.
Wey, H. D., Elmira, N. Y.
Whaley, Lewis, Birmingham, Ala.
Whitcomb, Harry H., Norristown, Pa.
White, Claude H., Cataract, Ind.
White, F. W., Philadelphia, Pa.
White, Franklin W., Boston, Mass.
White, Wm. H., Providence, R. I.
Whitney H. L., Plymouth, Pa.
Wholey, C. C., Pittsburg, Pa.
Wilbur, Ray Lyman, Stanford University, Cal.
Wiegand, Wm. F., Baltimore, Md.
Wilkins, J. C., Oil City, Pa.
Williams, Pearl, Providence, R. I.
Williams, T. R., Punxsutawney, Pa.
Williams, W. T., Mt. Carmel, Pa.
Willson, Robert N., Philadelphia.
Wilson, T. D. M., Washington, Pa.
Wilson, J. C., Philadelphia.
Wilson, H., Beaver, Pa.
Wilson, Gordon, Baltimore.
Wilson, Robert, Jr., Charleston, Pa.
Wister, James W., Philadelphia.
Witherspoon, J. A., Nashville, Tenn.
Wohlgemuth, Albert E., Buffalo, N. Y.
Wolfe, Samuel, Philadelphia.
Wolter, H. A., Green Bay, Wis.
Wood, Edward J., Wilmington, N. C.
Wood, Louis C., Poughkeepsie, N. Y.
Wood, Walter H., Greeley, Colo.
Woodhull, J. B., North Bennington, Vt.
Woods, George L., Springfield, Mass.
Woodside, H. A., Lumber City, Pa.
Woodward, S. W., Greeneville, Tenn.
Wright, Frederick T., Douglas, Ariz.
Wright, M. F., Burlington, W. Va.
Yarian, Norman C., Cleveland, O.
Yates, Frederick, Washington, D. C.
Yeager, George C., Philadelphia.
Zern, J. G., Lehighton, Pa.
Zepp, James A., Baltimore, Md.
Ziegel, H. Fred Lange, New York.
Zinninger, George F., Canton, Ohio.

Obstetrics and Diseases of Women.

Abbott, B. T., Ocean City, N. J.
Alexander, W. H., Blakely, Ga.
Allen, Frederick B., North Wales, Pa.
Allen, Jesse Hall, Philadelphia.
Anspach, Brooke M., Philadelphia.
Applegate, John C., Philadelphia.
Arnold, J. O., Philadelphia.
Ashton, W. E., Philadelphia.
Astley, G. Mason, Philadelphia.
Bacon, Charles S., Chicago.
Baer, B. F., Philadelphia.
Baer, J. S., Camden, N. J.
Bagshaw, D. E., Saginaw, Mich.
Baker, F. J., Lockport, N. Y.
Baldy, John Montgomery, Philadelphia.
Bandler, S. Wellis, New York.
Barber, Annetta E., Glens Falls, N. Y.
Barker, T. Ridgway, Philadelphia.
Barlow, C. H., Portsmouth, Va.
Barnes, Charles S., Philadelphia.
Barnes, Ida C., Topeka, Kan.
Barnes, Delbert, Wilkesbarre, Pa.
Barnardy, Henry L., Philadelphia.
Barnes, Henry D., Philadelphia.
Bigelow, I. S., Dubuque, Iowa.
Bigham, Earl, Grand Rapids, Mich.
Bland, Curtis, Greensburg, Ind.
Boblt, H. J., New York.
Bonifield, Charles L., Cincinnati, O.
Bourdeau-Sisco, P. S., Takoma Park, Md.
Bovée, J. W. ley, Washington, D. C.
Boyd, G. M., Philadelphia.
Brack, Charles Emil, Baltimore, Md.
Branham, Joseph H., Baltimore, Md.
Branson, Laura House, Iowa City, Ia.
Briggs, Henry W., Wilmington, Del.
Broadrup, Geo. L., Cumberland, Md.
Brown, George C., Dunmore, Pa.
Bruin, M. R., Strasburg, Va.
Bullock, D. W., Wilmington, N. C.
Bunn, Ralph A., Dayton, Ohio.
Bwringer, Charles Winfield, East Orange, N. J.
Campbell, Harry M., Parkersburg, W. Va.
Carey, Harry K., Philadelphia.
Carney, Edward J., Durand, Mich.
Carpenter, Frank B., San Francisco.
Carpenter, Julia W., Cincinnati, Ohio.
Carstens, J. H., Detroit, Mich.
Carver, R. H., Providence, R. I.

Chandler, Swithin, Philadelphia.
Charlesworth, Irving E., Bridgeton, N. J.
Chase, Walter B., Brooklyn, N. Y.
Clapper, Wm. R., Victor, N. Y.
Clark, Emma C., Dover, N. J.
Clark, John G., Philadelphia.
Clark, Samuel M. D., New Orleans, La.
Cogill, Lida Stewart, Philadelphia.
Conner, Annie L., Philadelphia.
Corbett, H. C., Arlington, Va.
Coumbe, A. G., Vienna, Va.
Craig, Daniel H., Boston.
Crandall, T. V., Philadelphia.
Cullen, Thomas S., Baltimore, Md.
DaCosta, John C., Philadelphia.
Darnall, Wm. Edgar, Atlantic City, N. J.
Davenport, James Henry, Providence, R. I.
Davis, Edward P., Philadelphia.
Davis, J. D. L., Birmingham, Ala.
Davis, Wm. H., Camden, N. J.
Day, Harriet M., Moorepaqua, Ill.
Day, S. Thomas, Port Norris, N. J.
Delaney, Wm. J., Nangatuck, Conn.
Denning, Edward J., South Boston, Mass.
DeVenney, J. C., Harrisburg, Pa.
Dial, W. H., Laurens, S. C.
Ditchburn, D. T., Arnot, Pa.
Dix, J. Morgan, Cape May C. H., N. J.
Doering, E. J., Chicago.
Doherty, William B., Louisville, Ky.
Donnell, James O., Paterson, N. J.
Donovan, Francis D., Boston.
Dorsett, F. Lee, St. Louis, Mo.
Dorsett, Walter B., St. Louis, Mo.
Downs, P. S., Dover, Del.
Dumm, J. M., Mackeyville, Pa.
Eastman, Thomas B., Indianapolis, Ind.
Edgerton, Howard K., Lebanon, Tenn.
Ebner, S. I., Rochester, N. Y.
Eck, Theo. A., Philadelphia.
Everett, Edward, Millville, Pa.
Faverman, W. B., Atlantic City, N. J.
Fendler, Amelia Mollie, New York.
Fisher, John M., Philadelphia.
Fithian, J. W., Camden, N. J.
Fitts, Alston, Tuscaloosa, Ala.
Fleming, C. K., Denver, Colo.
Floyd, J. C. M., Steubenville, Ohio.
Forrest, George W. K., Wilmington, Del.
Francis, Nelson W., Starke, Fla.
Frederick, C. C., Buffalo, N. Y.
Fry, Henry D., Washington, D. C.
Gallant, A. Ernest, New York.
Garceau, Edgar, Boston.
Gardner, William S., Baltimore, Md.
Garton, Albert F., Philadelphia.
Gates, L. M., Scranton, Pa.
Gilliland, D. Ted, Columbus, Ohio.
Gillmore, Robert T., Chicago.
Girdi, John H., Philadelphia.
Godfrey, W. L., Battle Creek, Mich.
Goelet, Robert, New York.
Goffe, J. Riddle, New York.
Goldspohn, A., Chicago.
Good, Frederick L., Boston.
Goodwin, Wm. W., Newark, N. J.
Gordon, Seth C., Portland, Maine.
Grad, Hermann, New York.
Graham, Thomas E., St. Louis, Mo.
Greene, Mary T., Castile, N. Y.
Grimes, R. B., Philadelphia.
Haehnlen, W. Frank, Philadelphia.
Hall, William L., Spokane, Wash.
Hamilton, Annie Lee, Boston.
Hammond, Frank C., Philadelphia.
Healy, William P., New York.
Hetrick, David Joseph, Harrisburg, Pa.
Higgins, Charles W., Providence, R. I.
Hodgson, F. M. C., Atlanta, Ga.
Hoffman, J. Louis, Ashland, Pa.
Hofmann, Ottokar, Jr., Kansas City, Mo.
Hotchkiss, Norton Royce, New Haven, Conn.
Huggins, Raleigh R., Pittsburg, Pa.
Huggins, W. L., Schenectady, N. Y.
Humphreys, John F., Saratoga, N. Y.
Hunner, Guy L., Baltimore, Md.
Huson, Florence, Detroit, Mich.
Ill, Charles L., Newark, N. J.
Irish, B. L., Troy, N. Y.
Jack, Harvey H., Canisteo, N. Y.
Jackson, Daniel F., Pittsburg, Pa.
Jacob, Louis H., Philadelphia.
Jamieson, Robert A., Detroit, Mich.
Jeffords, H. M., Sylvester, Ga.
Jewett, Charles, Brooklyn, N. Y.
Johnson, F. W., Boston.
Johnson, H. L. E., Washington, D. C.
Johnston, J. Ambrose, Cincinnati, Ohio.
Johnson, Ray H., Buffalo, N. Y.
Jones, Charles N. D., New York.
Kauffman, J. W., Reading, Pa.
Keller, F. J., Paterson, N. J.
Kelley, J. Thomas, Jr., Washington, D. C.
Kelly, J. G., Hornell, N. Y.
Kemble, C. C., Tidioute, Pa.
Kennedy, James W., Philadelphia.
Kercher, Delno E., Philadelphia.
Kieffer, Akmon R., St. Louis, Mo.
Kingman, Rufus A., Boston.
Kinnear, C. H., Tacoma, Wash.
Knickerbocker, H. J., Geneva, N. Y.
Krusen, Wilmer, Philadelphia.
Lalor, W. S., Trenton, N. J.
Langworthy, S. B., Leavenworth, Kan.
Leonard, Charles Lester, Philadelphia.
Lidl, Edward N., Jacksonville, Fla.
Lillibridge, Alice, Scranton, Pa.
Locke, Melvin, Bellefonte, Pa.
Lockrey, Sarah H., Philadelphia.
Long, John B., Indianapolis, Ind.
Long, John Wesley, Greensboro, N. C.
Longaker, Daniel, Philadelphia.
Longenecker, Christian B., Philadelphia.
McAdory, Wellington Prude, Birmingham, Ala.
McAlexander, R. O., Indianapolis, Ind.
McBean, J. C., Applegate, Mich.
Maclay, Joseph A., Paterson, N. J.
McDonald, Ellice, New York.
McDougald, John Q., Philadelphia.
McGuire, Edward, Richmond, Va.
McKee, E. S., Cincinnati, Ohio.
McKirahan, J. R., Minden, Neb.
McMahon, John J., New York.
McMurtry, Lewis S., Louisville, Ky.
Maier, F. H., Philadelphia.
Malone, Wm. F., Milwaukee, Wis.
Marcy, Henry O., Boston.
March, E. J., Canton, Ohio.
Manton, W. P., Detroit, Mich.
Martin, Elizabeth L., Pittsburg, Pa.
Massey, G. Betton, Philadelphia.
Mastin, N. W., Wellsboro, Pa.
Mathis, Edgar G., Manor, Texas.
Metcalf, Wm. F., Detroit, Mich.
Miller, C. Jeff, New Orleans, La.
Miller, Mary Thomas, Philadelphia.
Miller, S. M., Knoxville, Tenn.
Mills, Henry M., Brooklyn, N. Y.
Monash, David F., Chicago.
Montgomery, E., Philadelphia.
Moran, John F., Washington, D. C.
Morris, Lewis C., Birmingham, Ala.
Mount, H. A., Waitsburg, Wash.
Neff, E. E., Altoona, Pa.
Newland, Frank H., Clifton Springs, N. Y.
Nicholson, Wm. R., Philadelphia.
Noble, Charles P., Philadelphia.
Norris, Richard L., Philadelphia.
Pantzer, Hugo O., Indianapolis, Ind.
Parke, Wm E., Philadelphia.
Peck, Elizabeth L., Philadelphia.
Peterson, Reuben V., Arbor, Mich.
Pfaff, O. G., Indianapolis, Ind.
Pierce, Endora, Brooklyn, N. Y.
Pierce, Louis R., Newburg, N. Y.
Polak, John O., Brooklyn, N. Y.
Porter, Wm. D., Cincinnati, Ohio.
Potter, Marion Craig, Rochester, N. Y.
Potter, Wm. Warren, Buffalo, N. Y.
Powell, W. S., Defiance, Ohio.
Pratt, W. H., Camden, N. J.
Prescott, Eva, Chicago.
Putt, Maurice O., Oberlin, Pa.
Pyle, W. T., Swissvale, Pa.
Quay, E. P., Belleville, Ill.
Rafferty, T. N., Rhinelander, Ill.
Ramsay, Robert N., Philadelphia.
Raudenbush, J. S., Philadelphia.
Reddick, James T., Paducah, Ky.
Reed, James D., Covina, Cal.
Reese, Frank D., Cortland, N. Y.
Regar, Horace K., Philadelphia.
Reynolds, C. B., Philadelphia.
Reynolds, Edward, Boston.
Richards, J. N., Fallsington, Pa.
Richardson, Emma M., Camden, N. J.
Ritter, Ella N., Williamsport, Pa.
Robertson, Colin G., Sandusky, Mich.
Robinson, F. J., Fairfield, Maine.
Rothrock, J. L., St. Paul, Minn.
Salade, Louis A., Philadelphia.
Schroeter, Ludwig, Buffalo, N. Y.
Schumann, Edward A., Philadelphia.
Scott, James W., Sandusky, Mich.
Scull, Wm. B., Philadelphia.
Sellers, Ira J., Birmingham, Ala.
Sellman, William A. B., Baltimore, Md.
Selover, C. W., Stanley, N. Y.
Shillito, Nicholas, Allegheny, Pa.
Shoemaker, Geo. Erety, Philadelphia.
Shultz, P. David, New York.
Simpson, F. F., Pittsburg, Pa.
Smith, Clarence A., Seattle, Wash.
Smith, George E., Fredonia, N. Y.
South, Lillian H., Bowling Green, Ky.
Spring, Wm. M., Washington, D. C.
Spurney, Albert F., Cleveland, Ohio.
Stein, George N., Norristown, Pa.
Stevens, A. B., South Canaan, Pa.
Stevens, Frank W., Bridgeport, Conn.
Stevens, William A., Hamlinton, Pa.
Stevenson, G. E., Gorham, N. Y.
Steward, William J., Lancaster, Pa.
Stillwagen, Charles A., Pittsburg, Pa.
Stone, Isaac Scott, Washington, D. C.
Strasser, August Adrian, Arlington, N. J.
Strauss, S., New York.
Strobell, C. W., Rutland, Vt.
Strother, W. H., Big Spring, Ky.
Taneyhill, G. Lane, Baltimore, Md.
Thomas, Geo. H., Holland, Mich.
Thompson, Hannah M., Wilmington, Del.
Tittlow, Bennetta I., Springfield, Ohio.
Tobias, John B., Wilkesbarre, Pa.
Todd, Frank L., Allegheny, Pa.
Tompkins, Christopher, Richmond, Va.
Torbert, James R., Boston.
Van Eman, Frederick T., Kansas City, Mo.
Vernier, Jean A., Detroit, Mich.
Walker, Edwin, Evansville, Ind.
Ward, George Gray, Jr., New York.
Warren, Franklin L., Bridgewater, Mass.
Weeks, Albert, Phoenixville, Pa.
Weeks, J. Frank, New Bedford, Mass.
Weida, George A., Frederick, Pa.
Weller, Miles, Denver, Colo.
Wenck, Mary McCay, Sunbury, Pa.
Werder, D. H., Pittsburg, Pa.
Wertenbaker, Wm., New Castle, Del.
West, John W., Philadelphia.
Wetherill, Horace A., Denver, Colo.
Whipple, Electa B., Buffalo, N. Y.
Willetts, T. L., Harrisburg, Pa.
Wilson, Abram S., Bristol, Pa.
Witter, G. H., Wellsville, N. Y.
Woodbury, Herbert Elwell, Indianapolis, Ind.
Woodhead, H. Irvin, Forksville, Pa.
Yarbrough, L. A., Covington, Tenn.
Yates, H. Wellington, Detroit, Mich.

Surgery and Anatomy.

Abbott, C. S., Laconia, N. H.
Abell, Irwin, Louisville, Ky.
Adams, Charles F., Carthage, N. Y.
Adams, Frank L., Oakland, Cal.
Adler, D. H., Jr., Philadelphia.
Albee, Fred Houdlett, New York.
Allaben, J. E., Rockford, Ill.
Allen, W. L., Davenport, Iowa.
Allis, Oscar H., Philadelphia.
Amerman, I. W., Nevada, Mo.
Anderson, Jas., Salem, Ohio.
Andrews, Wyllys, Chicago.
Armstrong, Alex., Trenton, N. J.
Armstrong, Alfred W., Canandaigua, N. Y.
Arthur, Wm. H., Washington, D. C.
Ashby, A. A., Red Oak, Iowa.
Ashley, Dexter D., New York.
Asher, Joseph M., Philadelphia.
Ashhurst, Astley P. C., Philadelphia.
Attee, John L., Lancaster, Pa.
Ayres, Douglas, Fort Plain, N. Y.
Ayres, Winfield, New York.
Babcock, W. Wayne, Philadelphia.
Bacon, Wm. F., York, Pa.
Bailey, Charles H., Bloomfield, N. J.
Bain, Frank D., Kenton, Ohio.
Baker, Morton W., U. S. Navy.
Baldwin, James H., Philadelphia.
Balich, Charles A., Wadsworth, O.
Ball, Francis P., Rock Haven, Pa.
Ballin, Max, Detroit, Mich.
Bance, Samuel Thompson, Philadelphia.
Barber, V., Brooklyn, N. Y.
Barker, Frederick D., Dayton, O.
Barkley, A. H., Lexington, Ky.
Barnes, R. F., Newark, Ohio.
Barnett, Charles E., Wayne, Ind.
Barnum, Merritt Wright, Passaing, N. Y.
Barr, Richard A., Nashville, Tenn.
Bartlett, Willard, St. Louis, Mo.
Batchelor, W. C., Milwaukee, Wis.
Baugh, A. W., Paoli, Pa.
Baumann, J. J., Jersey City, N. J.
Beach, William M., Pittsburg, Pa.
Beck, Carl, Chicago.
Beck, Carl, New York.
Beede, S. C., David City, Neb.
Behle, Augustus C., Salt Lake City, Utah.
Behrend, Moses, Philadelphia.
Bell, G. Franklin, Williamsport, Pa.
Bentley, Edwin, Little Rock, Ark.
Berg, A. A., New York.
Bernstein, A. H., Scranton, Pa.
Bevan, Arthur Dean, Chicago.
Biedler, Hampson H., Baltimore, Md.
Bishop, William Thomas, Harrisburg, Pa.
Bissell, Joseph B., New York.
Black, John F., White Plains, N. Y.
Blackburn, John H., Bowling Green, Ky.
Blair, J. E., Burlington, N. J.
Blake, Charles F., Baltimore, Md.
Blauvelt, Ernest, New York.
Bodine, John A., New York City.
Bosher, Lewis C., Richmond, Va.
Bosworth, Robinson, Burton, Vt.
Bottomley, John T., Boston.
Boucher, J. B., Hartford, Conn.
Bowers, Charles E., Wichita, Kan.
Bowers, Walter P., Clinton, Miss.
Bowman, Frank S., Philadelphia.
Boyce, D. C., Allegheny, Pa.
Boyd, John R., Oakvale, W. Va.
Brausch, W. F., Rochester, Minn.
Bradford, Edward H., Boston.
Bradford, Walter C., Shawnee, Okla.
Bradley, N. R., Saginaw, Mich.
Brady, Franklin, Philadelphia.
Bradshaw, John H., Orange, N. J.
Brant, Austin C., Canton, Ohio.
Brant, Edward D., Canton, Ohio.
Brav, Herman A., Philadelphia.
Brennan, John J., Scranton, Pa.
Brick, J. Coles, Philadelphia.
Brickner, Walter M., New York.
Bristow, Algernon T., Brooklyn, N. Y.
Brödel, Max, Baltimore, Md.
Brown, D. C., Danbury, Conn.
Brown, Daniel J., Springfield, Mass.
Brumbaugh, A. B., Huntingdon, Pa.
Bryan, Robert C., Richmond, Va.
Bryant, Joseph D., New York.
Buchanan, John J., Pittsburg, Pa.
Buck, A. W., Fall River, Mass.
Buechner, W. H., Youngstown, Ohio.
Buford, Coleman, Chicago.
Bull, H. R., Grand Junction, Colo.
Bunce, Philip D., Hartford, Conn.
Burge, A. J., Iowa City, Iowa.
Burnam, Curtis F., Baltimore, Md.
Burns, Reed, Scranton, Pa.
Burrell, H. L., Boston.
Burroughs, W. M., Chicago.
Byers, John L., Kansas City, Mo.
Cabot, Hugh, Boston.
Cale, George W., Jr., St. Louis, Mo.
Calkins, Frederic R., Watertown, N. Y.
Calkins, Irving R., Springfield, Mass.
Campbell, O. Beverly, St. Joseph, Mo.
Campbell, R. F., Watertown, S. D.
Campbell, William Francis, Brooklyn, N. Y.
Canedy, Charles F., Greenfield, Mass.
Cannaday, W. E., Hansford, W. Va.
Cannon, T. Harris, Baltimore, Md.
Cantrell, C. E., Greenville, Texas.
Carmalt, William H., New Haven, Conn.
Carmany, Harry S., Philadelphia.
Carnett, J. R., Philadelphia.
Carpenter, Edwin J., Corning, N. Y.
Carter, Frank H., Waterbury, Conn.
Cayley, Charles E., Penaville, Ind.
Chandler, Wm. J., South Orange, N. J.
Chapman, George H., Glens Falls, N. Y.
Chase, R. R., Eau Claire, Wis.
Cheesman, Wm. S., Auburn, N. Y.
Chute, Arthur L., Boston.
Christie, G. L., Long Prairie, Minn.
Christian, Hilary M., Philadelphia.
Clark, Edmund D., Indianapolis, Ind.
Clark, Irving T., Rochester, N. Y.
Clark, J. A., Bellaire, Ohio.
Clark, John D., Auburndale, Mass.
Clayland, J. M., Brooklyn, N. Y.
Cleaver, Israel, Reading, Pa.
Cleaver, J. V., Akron, Ohio.
Clemons, E. Jay, Aberdeen, S. D.
Clifford, Raymond A., Ypsilanti, Mich.
Coe, Ben F., Dixonville, Pa.
Cokenower, James W., Des Moines, Iowa.
Colcord, A. W., Clairton, Pa.
Cole, Carter S., New York.
Coley, William B., New York.
Collins, Alva N., Detroit, Mich.
Collins, Clifford U., Peoria, Ill.

Collins, Foster K., Philadelphia.
Colhom, Spencer Allen, Ratcliff, Tex.
Conant, James B., Amsterdam, N. Y.
Connell, F. Gregory, Oshkosh, Wis.
Conner, Milton C., Middletown, N. Y.
Conaway, Walt Pouder, Atlantic City, N. J.
Cooke, A. B., Nashville, Tenn.
Cooke, Joseph A., Meriden, Conn.
Cooley, Judson C., Sandy Lake, Pa.
Cooney, H. C. Princeton, Minn.
Cooper, O. O., Hinton, W. Va.
Cordier, A. H., Kansas City, Mo.
Comstock, Geo. F., Saratoga Springs, N. Y.
Cory, Horace C., Newark, N. J.
Cotton, Albertus, Baltimore, Md.
Cottis, G. W., Batavia, N. Y.
Crain, M. K., Rutland, Vt.
Craig, Alexander R., Philadelphia, Pa.
Crawford, J. Kinnier, Philadelphia, Pa.
Craythorn, C. J., Trenton, N. J.
Crile, George, Cleveland, O.
Crowley, D. D., Oakland, Cal.
Culbertson, N. C., Massillon, O.
Cummins, John P. J., Ticonderoga, N. Y.
Curran, Geo. R., Mankato, Minn.
Da Costa, J. Chalmers, Philadelphia, Pa.
Dandurant, L. J., St. Joseph, Mo.
Darling, Byron C., Boston, Mass.
Darling, C. G., Ann Arbor, Mich.
Darrington, John, Yazoo City, Miss.
Darrow, Daniel C., Moorhead, Minn.
Darrow, Edward M., Fargo, N. D.
Daugherty, Charles A., South Bend, Ind.
Davies, O. C. S., Augusta, Me.
Davis, B. B., Omaha, Neb.
Dawbarn, Robert H. M., New York, N. Y.
Day, Frank L., Providence, R. I.
Day, J. A., Jacksonville, Ill.
Deaver, H. C., Philadelphia, Pa.
Deaver, John B., Philadelphia, Pa.
Deaver, Richard W., Germantown, Pa.
De Garmo, William B., New York, N. Y.
De Groot, I. C. E., Muskogee, I. T.
Dingman, J. Clarence, Spring Valley, N. Y.
Dixon, J. W., Wilkinsburg, Pa.
Dixon, Taylor Boyd, Washington, D.C.
Doege, Karl, Marshfield, Wis.
Dolphin, Benjamin E., New York, N. Y.
Donnelly, Peter, Toledo, O.
Donovan, J. J., Lewiston, Me.
Dorris, S. M., Bandana, Ky.
Dowd, Charles N., New York, N. Y.
Drake, H. H., Norristown, Pa.
DuBose, F. G., Selma, Ala.
Duncan, James A., Toledo, O.
Dunn, J. R., St. Cloud, Minn.
Dwyer, William M., Amsterdam, N.Y.
Dye, Frank P., Philadelphia, Pa.
Eads, B. Brindley, Chicago, Ill.
Eagleson, James B., Seattle, Wash.
Earhart, E. B., Saltsburg, Pa.
Earl, Robert, St. Paul, Minn.
Earle, Curran Bertram, Greenville, S. C.
Earle, Saml. T., Baltimore, Md.
Easton, Albert M., Philadelphia, Pa.
Eberhard, Le Roy C., Akron, O.
Eddy, W. J., Shelbyville, Ill.
Edwards, Lewis, Edwardsville, Pa.
Ehrmann, Fred J. E., Chicago, Ill.
Eisenhuth, Phillip, Norristown, Pa.
Elder, T. H., Philadelphia, Pa.
Elsberg, Charles A., New York, N. Y.
Emig, N. Fred, Spokane, Wash.
Estes, W. L., So. Bethlehem, Pa.
Evans, George B., Dayton, O.
Fairchild, D. S., Clinton, Iowa.
Falconer, R. C., Lexington, Ky.
Farquhar, Geo. Y., Pottsville, Pa.
Farrar, Joseph D., Philadelphia, Pa.
Faulds, Robert C., Abrams, Wis.
Fell, Alexander G., Wilkes-Barre, Pa.
Fetherolf, Fred A., Allentown, Pa.
Finn, Fred A., Akron City, N. Y.
Finney, John M. T., Baltimore, Md.
Fisher, Elbert E., Iowa City, Ia.
Fleming, J. C., Elkhart, Ind.
Foley, J. C., Waukegan, Ill.
Foley, M. F., Hoboken, N. J.
Foote, Charles G., Cleveland, O.
Forwood, J. L., Chester, Pa.
Fowler, H. H., Washington, D. C.
Frank, Jacob, Chicago, Ill.
Franklin, A. Leo, Cumberland, Md.
Franklin, Melvin M., Philadelphia, Pa.
Frauenthal, Henry W., New York, N. Y.
Free, Spencer M., DuBois, Pa.
Freis, H. G., Philadelphia, Pa.
Frick, W. J., Kansas City, Mo.
Fuller, Edwin M., Bath, Me.
Fuller, William, Chicago, Ill.
Gable, Isaac C., York, Pa.
Gale, Jos. A., Roanoke, Va.
Gallager, Harry, Glenolden, Pa.
Gallagher, V., Gilbertville, Ia.
Gant, S. G., New York, N. Y.
Gardner, H. D., Scranton, Pa.
Gaub, Otto C., Pittsburg, Pa.
Gay, George W., Boston, Mass.
Gilbride, John J., Philadelphia, Pa.
George, Wm. A., College View, Neb.
Gibbon, John H., Philadelphia, Pa.
Gibby, Herbert B., Pittston, Pa.
Given, Ellis E. W., Philadelphia, Pa.
Glendon, W. P., Cedarville, N. J.
Godfrey, Alfred C., Denver, Colo.
Godfrey, Andrew, Ambler, Pa.
Golden, William M., Elkins, W. Va.
Goldstein, David D., New York, N.Y.
Goldthwait, Joel E., Boston, Mass.
Goodhue, George, Dayton, O.
Goodwin, James J., Clinton, Mass.
Gottschalk, Leon, Marcus Hook, Pa.
Graham, David W., Chicago, Ill.
Grant, J. C., Lena, Wis.
Grant, W. W., Denver, Colo.
Gray, Frank D., Jersey City, N. J.
Gray, H. A., Keokuk, Ia.
Green, Chas. O., Hornell, N. Y.
Green, Frederick R., Chicago, Ill.
Green, James S., Elizabeth, N. J.
Greene, F. C., Chicago, Ill.
Gregor, G. D., Watertown, N. Y.
Griffith, Jefferson D., Kansas City, Mo.
Grigsby, Guy P., Bardstown, Ky.
Grimm, Alva S., St. Marys, W. Va.
Gromann, John, Utica, N. Y.
Grout, S. E., Birmingham, Ala.
Grove, Austin M., York, Pa.
Grube, John E., Punxsutawney, Pa.
Guild, Frank E., Windham, Conn.
Guthrie, William E., Bloomington, Ill.
Guiteras, Ramon, New York, N. Y.
Gumaer, A. G., Buffalo, N. Y.
Guthrie, Adam, Prescott, Ark.
Guthrie, George W., Wilkes-Barre, Pa.
Guthrie, James R., Dubuque, Ia.
Gwathmey, James Taylor, New York, N. Y.
Gwathmey, Lomax, Norfolk, Va.
Haecker, Lewis E., Hampton, Ia.
Hagerty, Hugh A., Detroit, Mich.
Hagner, Francis R., Washington, D.C.
Haines, W. D., Cincinnati, O.
Haire, R. D., Clinton, Mo.
Halberstadt, A. H., Pottsville, Pa.
Hall, R. W., Moundsville, W. Va.
Halpenny, J., Winnipeg, Canada.
Halstead, A. E., Chicago, Ill.
Halsted, W. S., Baltimore, Md.
Hamilton, Edwin A., Columbus, O.
Hamilton, W. T., Philadelphia, Pa.
Hammond, Jay, Philadelphia, Pa.
Hammond, Roland, Providence, R. I.
Hardenbergh, Daniel B., Middletown, N. Y.
Harris, M. L., Chicago, Ill.
Harrison, Archibald C., Baltimore, Md.
Harte, Richard H., Philadelphia, Pa.
Harvie, John B., Troy, N. Y.
Hawley, Pomroy C., Burlington, Vt.
Hayden, H. H., Baltimore, Md.
Hazelton, George W., Haverhill, N.H.
Heazlit, Ledra, Auburn, N. Y.
Heffner, O. C., Pottstown, Pa.
Hender, Lawrence, Buffalo, N. Y.
Hendon, George A., Louisville, Ky.
Henning, D. M., Memphis, Tenn.
Henry, Edwin C., Omaha, Neb.
Henry, James E. H., Providence, R.I.
Herrick, Frederick C., Cleveland, O.
Herrington, Willis J., Bad Axe, Mich.
Herron, R. G., Pittsburg, Pa.
Hicks, Soranus W., Hampton, N. Y.
Highsmith, J. F., Fayetteville, N. C.
Hill, C. D., Jersey City, N. J.
Hill, Corwin T., Akron, O.
Hill, Roland, St. Louis, Mo.
Hill, T. C., Boston, Mass.
Hobson, J. F., Cleveland, O.
Holland, R. A., Calais, Me.
Hollister, John C., Chicago, Ill.
Holmes, Frank R., Clinton, N. C.
Horner, M. W., Mt. Pleasant, Pa.
Horsley, J. Shelton, Richmond, Va.
Horwitz, Orville, Philadelphia, Pa.
Hough, Garry de N., New Bedford, Mass.
House, Augustus F., Cleveland, O.
Houston, D. W., Troy, N. Y.
Howell, John T., Wilkes-Barre, Pa.
Hunt, W. J., Glens Falls, N. Y.
Huntley, J. H., Lima, O.
Hupp, Frank LeMoyne, Wheeling, W. Va.
Hutchings, Willard Hunter, Detroit, Mich.
Jacobs, H. H., Akron, O.
Jackson, Ralph W., Fall River, Mass.
Jackson, Reginald H., Madison, Wis.
Jacobson, J. H., Toledo, O.
James, E. H., Harrisburg, Pa.
Janes, G. H., Westfield, Mass.
Jayne, Walter A., Denver, Colo.
Jaynes, E. T., New Hartford, Ia.
Jepson, William, Sioux City, Ia.
Jennings, Charles G. R., Elmira, N. Y.
Jessop, C. J., Kittanning, Pa.
John, J. S., Bloomsburg, Pa.
Johnson, Carl, Montrose, Colo.
Johnson, M. M., Hartford, Conn.
Johnson, W. D., Batavia, N. Y.
Johnston, George C., Pittsburg, Pa.
Jonas, A. F., Omaha, Neb.
Jopson, John H., Philadelphia, Pa.
Kane, J. M., Oakland, Cal.
Keefe, John W., Providence, R. I.
Keiller, William, Galveston, Tex.
Kelly, Howard A., Baltimore, Md.
Kelly, James A., Philadelphia, Pa.
Kerr, A. A., Salt Lake, Utah.
Kerr, J. G., Pittsburg, Pa.
Keyes, James J., Brooklyn, N. Y.
Kimball, Rush W., Norwich, Conn.
Kimball, Z. V., Hillsboro, Ill.
Kinney, Aaron J., Worcester, O.
King, Marion N., Texarkana, Ark.
Kiroy, F. J., Baltimore, Md.
Kirby, Holder C., New Bedford, Mass.
Kirk, L. H., Oxford, Pa.
Kline, Chas. D., Nyack, N. Y.
Klump, John A., Williamsport, Pa.
Kneer, Ferdinand G., New York, N.Y.
Knowlton, A. B., Columbia, S. C.
Koch, Geo. A., Newark, N. J.
Korsch, C. F. P., Chicago, Ill.
Kosisky, John W., So. Omaha, Neb.
Krouse, Louis J., Cincinnati, O.
Kuhn, Fred, Ind.
Kuhn, Chas. F., Detroit, Mich.
Kunkel, George B., Harrisburg, Pa.
Kuster, L., Marburg, Germany.
Kysor, L. M., Horton, N. Y.
Lamade, J., Williamsport, Pa.
Lang, J. F., Baltimore, Md.
Lapiace, Ernest, Philadelphia, Pa.
Larimore, Frank Carter, Mt. Vernon, O.
Lathrop, Walter, Hazleton, Pa.
Lawbaugh, A. L., Calumet, Mich.
Lawrence, Thomas F., Columbus, O.
Lawrence, W. H., Summit, N. J.
Lawson, S. B., Logan, W. Va.
Leary, William C., Springfield, Mass.
Le Boutillier, William G., New York, N. Y.
Le Conte, Robert G., Philadelphia, Pa.
Lee, Bernard R., Atlantic City, N. J.
Lee, Stephen G., East Orange, N. J.
Leidy, L. D., Flemington, N. J.
Leipziger, B. A., Burlington, Ia.
Lemon, Charles H., Milwaukee, Wis.
Lemon, Herbert K., Goshen, Ind.
Leopold, J., Olympia, Wash.
Lewis, Bransford, St. Louis, Mo.
Linville, Montgomery, New Castle, Pa.
Littig, L. W., Iowa City, Ia.
Livengood, T. F., Elizabeth, N. J.
Lloyd, Samuel, New York, N. Y.
Lockwood, Charles D., Pasadena, Cal.
Lockwood, F. W., East Orange, N. J.
Loder, Percival E., Philadelphia, Pa.
Loeb, Victor A., Philadelphia, Pa.
Loop, Ross G., Elmira, N. Y.
Lord, John Prentiss, Omaha, Neb.
Loughlin, T. B., Dean, N. Y.
Loux, H. R., Philadelphia, Pa.
Lower, William E., Cleveland, O.
Lucas, Frank B., Peoria, Ill.
Lucid, M. M., Cortland, N. Y.
Lynch, Charles F., Springfield, Mass.
Lynch, J. M., New York, N. Y.
Lund, F. B., Boston, Mass.
McAllister, Fredk. D., Lawrence, Mass.
McArthur, Louis L., Chicago, Ill.
McBride, Andrew F., Paterson, N. J.
McBride, G. A., Fort Gibson, I. T.
McCandless, S., St. Louis, Mo.
McCaskey, F. H., Freedom, Pa.
McCauley, W. H., Sutton, W. Va.
McChord, Robert C., Lebanon, Ky.
McClellan, H. B., Lewis, O.
McClellan, George W., Canandaigua, N. Y.
McClure, R. D., Baltimore, Md.
McComas, J. M., Elk City, Okla.
McCormack, Arthur T., Bowling Green, Ky.
McCosh, A. J., New York, N. Y.
McCoy, Ambrose, Jackson, Tenn.
McCoy, W. C., Evansville, Ind.
McCready, S. R., Lectonia, O.
McCreery, William B., Tacoma, Wash.
McCullough, A. H., Mansfield, O.
McDill, John R., Manila, P. I.
McDonald, J. W., Fairmont, W. Va.
MacDonald, Neil S., Hancock, Mich.
McElroy, Chas. I., Mt. Sterling, Ala.
McGarrahan, J. F., Cohoes, N. Y.
McGraw, Theodore A., Detroit, Mich.
McGuire, Stuart, Richmond, Va.
McKee, Thos. H., Buffalo, N. Y.
McKenna, John A., Lanesboro, Pa.
McKenna, John B., East Providence, R. I.
McKenzie, W. W., Salisbury, N. C.
McKnight, E. J., Hartford, Conn.
McMillan, B. F., Red Springs, N. C.
MacMillan, J. A., Detroit, Mich.
McMurrow, Frank, Syracuse, N. Y.
McMullen, Charles G., Schenectady, N. Y.
MacNicholl, T. Alexander, New York, N. Y.
McNutt, W. F., San Francisco, Cal.
McOscar, Edward J., Ft. Wayne, Ind.
Macpherson, W. A., Le Roy, N. Y.
McRae, Floyd W., Atlanta, Ga.
McVeigh, J. A., Detroit, Mich.
McWhorter, H. P., Collinsville, Ala.
Maddin, J. W., Jr., Nashville, Tenn.
Mahon, John B., Pittston, Pa.
Mahoney, Stephen A., Holyoke, Mass.
Manchester, W. C., Alliance, O.
Mandell, A. H., New Bedford, Mass.
Mann, C. H., Bridgeport, Pa.
Mann, J. P., Philadelphia, Pa.
Marble, R. R., Bastings, Neb.
Marcy, Henry O., Jr., Boston, Mass.
Marsh, F. L., Mt. Pleasant, Pa.
Marsh, J. H., Fayetteville, N. C.
Martin, J. C., Atlantic City, N. J.
Martin, Collier F., Philadelphia, Pa.
Martin, Frank, Baltimore, Md.
Martin, Harry C., Springfield, Mass.
Matas, Rudolph, New Orleans, La.
Matheny, A. R., Pittsburg, Pa.
Matthews, W. J., Johnson City, Tenn.
Maury, J. W. Draper, New York, N.Y.
Maxwell, Henry Byrne, Whiteville, N. C.
Maynard, S. E., Burlington, Vt.
Mayo, W. J., Rochester, Minn.
Means, W. J., Columbus, O.
Meeray, Paul M., Camden, N. J.
Meisenhelder, Edmund W., Jr., York, Pa.
Meyer, Willy, New York, N. Y.
Michler, Henry O., Easton, Pa.
Miles, F. T., Salem, O.
Miller, A. E., Metropolis, Ill.
Miller, A. L., Dixon, Ill.
Miller, S. R., Knoxville, Tenn.
Miller, S. W., Lancaster, Pa.
Miller, Morris Booth, Philadelphia, Pa.
Mills, W. P., Missoula, Mont.
Mitchell, Alfred, Jr., Portland, Me.
Mitchell, Charles F., Philadelphia, Pa.
Mitchell, J. W., Providence, R. I.
Mitchell, James F., Washington, D.C.
Mittelstaedt, C. B. J., New York, N. Y.
Morse, W. B., Salem, Ore.
Moriarta, D. C., Saratoga, N. Y.
Morris, J. E. K., Olean, N. Y.
Morris, Robert T., New York, N. Y.
Morrison, John Bennett, Newark, N.J.
Morse, Frank L., Somerville, Mass.
Morton, A. W., San Francisco, Cal.
Morton, Geo. D., Philadelphia, Pa.
Mosby, Wm. Lindsay, Bardwell, Ky.
Moss, W. F., Maineville, O.
Mueller, George, Chicago, Ill.
Mumford, James G., Boston, Mass.
Munro, John C., Boston, Mass.
Murphy, E. S., Dixon, Ill.
Murphy, Fred T., Boston, Mass.
Murphy, John B., Chicago, Ill.
Murray, Dwight H., Syracuse, N. Y.
Murray, T. J., Butte, Mont.
Muschletz, C. H., Philadelphia, Pa.
Nash, Geo. A., Maryville, Mo.
Nason, Wm. Albert, Roaring Spring, Pa.
Neal, William E., Cincinnati, O.
Neale, R. A., Chicago, Ill.
Neilson, Thomas R., Philadelphia, Pa.
Nicholson, Elmer, Minneapolis, Minn.
Nicholson, Joseph L., Camden, N. J.
Nicolson, Wm. Perrin, Atlanta, Ga.
Nihiser, W. M., Keedysville, Md.
Noecker, Chas. B., Scranton, Pa.
Norwood, E. E., Kingston, N. Y.
Nutt, G. D., Williamsport, Pa.
Nydegger, James A., Stapleton, N. Y.
Oakman, Carl S., Detroit, Mich.
Oliphant, N. B., Trenton, N. J.
O'Meara, Mark, Kingston, N. Y.
O'Reilly, Charles A., Strafford, Pa.
Osborn, Geo. Wakeman, Bridgeport, Conn.
Ottis, D. M., Springfield, Ill.
Page, Kingman B., New York, N. Y.
Palmer, John, Jr., Wilmington, Del.
Palmer, Lewis M., So. Framingham, Mass.
Palmer, W. R., Johnsonburg, Pa.
Parkhill, C. S., Hornell, N. Y.
Parrish, Robert C., Philadelphia, Pa.
Parsons, J. C., Jersey City, N. J.
Patterson, Ed. W., U. S. Army.
Patton, George F., New Orleans, La.
Pearse, Herman E., Kansas City, Mo.

V 4
190

Pease, C. A., Burlington, Vt.
Peck, G. S., Youngstown, O.
Peck, George A., New Rochelle, N.Y.
Peddle, Geo. H., Perry, N. Y.
Pember, John Frank, Janesville, Wis.
Penning, Oliver P., Baltimore, Md.
Pennington, J. R., Chicago, Ill.
Percy, J. F., Galesburg, Ill.
Perry, S. W., New Castle, Pa.
Peterson, H. D., Kelley's Island, O.
Phillips, W. F. H., Washington, D.C.
Pickard, J. E., Virginia City, Nev.
Pomerene, H. P., Canton, O.
Porter, Miles F., Ft. Wayne, Ind.
Potter, Geo. E., Detroit, Mich.
Powers, Charles A., Denver, Colo.
Prather, Hugh E., Hickman, Ky.
Preston, James L., Kingston, N. Y.
Prevost, C. W., Pittston, Pa.
Prouty, Ira J., Keene, N. H.
Quigley, F. Leo, Wallace, Idaho.
Quinby, William C., Boston, Mass.
Quinn, Stephen T., Elizabeth, N. J.
Ragan, A. H. Williams, Hagerstown, Md.
Rankin, Geo. T., Jr., Akron, O.
Reddan, M. W., Trenton, N. J.
Reed, Charles A. L., Cincinnati, O.
Reid, Robert J., Wheeling, W. Va.
Reid, Wm. B., Rome, N. Y.
Reilly, J. P., Elizabeth, N. J.
Requardt, W. W., Baltimore, Md.
Resseguie, F. J., Saratoga Springs, N. Y.
Rice, Daniel S., Hastings, Pa.
Richards, J. W., Slatington, Pa.
Richards, Ralph T., Salt Lake, Utah.
Richardson, Maurice H., Boston, Mass.
Rietz, P. C., Evansville, Ind.
Ringnell, C. J., Minneapolis, Minn.
Robbins, G. E., Chillicothe, O.
Roberts, Arthur, Philadelphia, Pa.
Roberts, Wm. Owen, Louisville, Ky.
Robertson, S. E., Newark, N. J.
Robertson, W. M., St. Louis, Mo.
Robertson, W. M., Warren, Pa.
Robrecht, John J., Philadelphia, Pa.
Rock, H. J., Aberdeen, S. D.
Rodman, Wm. L., Philadelphia, Pa.
Rogers, Carey P., Jacksonville, Fla.
Ross, Elias G., Scranton, Pa.
Rooth, H. C., Buffalo, N. Y.
Rose, Alanson D., Providence, R. I.
Ross, George G., Philadelphia, Pa.
Royster, H. D., Raleigh, N. C.
Rudolph, Henry Latimer, Gainesville, Ga.
Ruhl, Henry, New York, N. Y.
Ryall, George W., Wooster, O.
Ryan, Walter, Springfield, Ill.
Sala, E. M., Rock Island, Ill.
Salmon, James M., Ashland, Ky.
Samuel, Meredith L., Wilmington, Del.
Sance, Ray L., Pittsburg, Pa.
Sarles, W. T., Sparta, Wis.
Satterwhite, T. P., Louisville, Ky.
Schachner, August, Louisville, Ky.
Schlueter, Robert E., St. Louis, Mo.
Schneck, S. W., Mt. Carmel, Ill.
Schaffer, C. D., Allentown, Pa.
Schwinn, Jacob, Wheeling, W. Va.
Seofield, Walter K., U. S. Navy
Senseman, Theodore, Atlantic City, N. J.
Shaw, C. E., Williamsport, Pa.
Shea, Augustus W., Nashua, N. H.
Shepherd, Irwin J., Wilmington, Del.
Sherk, Henry Howard, Pasadena, Cal.
Sherwood, Walter A., Brooklyn, N.Y.
Shultz, G., Danville, Pa.
Sill, H. B., Oakland, Cal.
Silver, C. D., Plattsburg, N. Y.
Silver, Henry M., New York, N. Y.
Sisler, G. W., Water Valley, Miss.
Skinner, W. W., Geneva, N. Y.
Sloan, R., Marietta, O.
Sloan, H. E., Clarksburg, W. Va.
Small, Alex. H., Riverside, N. J.
Smith, A. Howard, Marietta, O.
Smith, Addison W., Scranton, Pa.
Smith, Andrew C., Portland, Ore.
Smith, Franklin Buchanan, Frederick City, Md.
Smith, John F., Salem, N. J.
Smith, Lorin W., Wabash, Ind.
Smith, Mary Almira, Boston, Mass.
Smith, Oliver C., Hartford, Conn.
Smith, Robert A., Chicago, Ill.
Smouse, David W., Des Moines, Ia.
Smythe, John, New Orleans, La.
Sommer, Geo. N. J., Trenton, N. J.
Sornberger, S. J., Cortland, N. Y.
Souther, Charles T., Cincinnati, O.
Spofford, Harry N., Batavia, N. Y.
Spear, Walter M., Rockland, Me.
Spear, Raymond, U. S. Navy.
Speese, John, Philadelphia, Pa.
Spencer, G. W., Philadelphia, Pa.
Spence, Thomas B., Brooklyn, N. Y.
Spottswood, E. W., Missoula, Mont.
Squier, A. O., Springfield, Mass.
Stackhouse, C. P., Wilkes-Barre, Pa.
Staller, Max, Philadelphia, Pa.
Stauffer, William H., St. Louis, Mo.
Steel, W. A., Philadelphia, Pa.
Steinbach, L. W., Philadelphia, Pa.
Stelle, H. L., Pittsburg, Kan.
Stellwagen, Frederick, Weehawken, N. J.
Stellwagen, Thos. P., Philadelphia, Pa.
Stern, Alex. A., Kingston, N. Y.
Stetson, Halbert G., Greenfield, Mass.
Stewart, J. Clark, Minneapolis, Minn.
Stewart, Thomas S., Philadelphia, Pa.
Stewart, Wm. D., Toledo, O.
St. John, David B., Hackensack, N.J.
Stokes, A. C., Omaha, Neb.
Straight, A. M., Bradford, Pa.
Straub, Paul F., Washington, D. C.
Street, D. D. T., Vicksburg, Miss.
Stremmel, S. C., Macomb, Ill.
Strickland, D. H., Erie, Pa.
Stuart, E. C., Pittsburg, Pa.
Sturge, Edgar, Scranton, Pa.
Styer, D. W., Churchtown, Pa.
Sullivan, John D., Brooklyn, N. Y.
Summers, John E., Jr., Omaha, Neb.
Taggart, David, Frackville, Pa.
Tainter, L. K., Fredericksburg, Tex.
Tarbell, H. A., Watertown, S. D.
Taylor, C. E., Irwin, Pa.
Taylor, Frederick C., Cleveland, O.
Taylor, Henry Lingg, New York, N.Y.
Taylor, Hugh M., Richmond, Va.
Taylor, J. L., Libertyville, Ill.
Taylor, W. S., Alliance, O.
Taylor, William J., Philadelphia, Pa.
Teller, William H., Philadelphia, Pa.
Terry, Charles C., South Bend, Ind.
Terry, Herbert, Providence, R. I.
Thomas, B. A., Philadelphia, Pa.
Thomas, J. H., Atlanta, Ga.
Thompson, Fredk. H., Fitchburg, Mass.
Tibbals, Frank Burr, Detroit, Mich.
Tipton, W. R., Las Vegas, N.M.
Tinker, Martin B., Ithaca, N. Y.
Titus, W. S., Mora, Minn.
Towne, G. Scott, Saratoga Springs, N. Y.
Townsend, Chas. E., Newburg, N. Y.
Townsend, Wisner Robinson, New York, N. Y.
Trent, Isaac N., Muncie, Ind.
Truesdale, Philemon E., Fall River, Mass.
Tuers, G. E., Paterson, N. J.
Tupper, V. L., Bay City, Mich.
Tupper, Paul Y., St. Louis, Mo.
Tweedy, H. J., Winona, Minn.
Twinch, Sidney A., Newark, N. J.
Umstad, J. R., Norristown, Pa.
Vale, F. P., Washington, D. C.
Vance, James, El Paso, Tex.
Vance, W. K., Bristol, Tenn.
Vanmeter, B. F., Lexington, Ky.
Van Wagner, Lee C., New Berlin, N. Y.
Van Zwalunenburg, C., Riverside, Cal.
Verdi, William F., New Haven, Conn.
Ver Nooy, Charles D., Cortland, N.Y.
Vrooman, Alfred S., Kingston, N.Y.
Wakefield, S. R., West Salem, Wis.
Walker, A. B., Canton, O.
Walker, Frank B., Detroit, Mich.
Walker, Henry Otis, Detroit, Mich.
Walker, J. A., Shawnee, Okla.
Walker, J. E., Hornell, N. Y.
Walker, John B., New York, N. Y.
Wallace, J. B., Tampa, Fla.
Warbasse, James P., New York, N.Y.
Ward, Wm. J., Newark, N. J.
Wareham, E. A., Hagerstown, Md.
Ware, Martin W., New York, N. Y.
Warmuth, M. P., Philadelphia, Pa.
Warren, Nathan A., Yonkers, N. Y.
Waterworth, S. J., Clearfield, Pa.
Wathen, Wm. H., Louisville, Ky.
Watson, Frank G., Boston, Mass.
Watson, Wm. N., Philadelphia, Pa.
Weaver, W. G., Wilkes-Barre, Pa.
Weaver, Joseph K., Norristown, Pa.
Weber, John H., Akron, O.
Wegefarth, Harry M., Baltimore, Md.
Weir, Robert F., New York, N. Y.
Weiser, Walter R., Springfield, Mass.
Weist, Harry H., Richmond, Ind.
Wells, Ernest A., Hartford, Conn.
Welty, Emil M., Philadelphia, Pa.
Werden, W. Van, Des Moines, Ia.
Werner, R. F., Eau Claire, Wis.
Westmoreland, W. F., Atlanta, Ga.
Wheeler, R. B., McKendree, W. Va.
Wherritt, D. H., Chicago, Ill.
White, Frank, Philadelphia, Pa.
Whitt, Wm. S., East St. Louis, Ill.
Widmyer, J. Lawrence, Philadelphia, Pa.
Wieder, Henry S., Philadelphia, Pa.
Wiggins, J. L., E. St. Louis, Ill.
Wiggins, S. L., McKeesport, Pa.
Wilbur, Hubert G., Fall River, Mass.
Wilcox, F. W., St. Petersburg, Fla.
Willard, De Forest, Philadelphia, Pa.
Williams, E. C., Collinsville, Tex.
Williams, Morgan J., Scranton, Pa.
Wilson, H. Augustus, Philadelphia, Pa.
Wilson, J. H., Dover, Del.
Wilson, J. T., Sherman, Tex.
Wilson, W. E., Pawtucket, R. I.
Winslow, Randolph, Baltimore, Md.
Winterbotham, J. H., Salina, Kas.
Wishard, W. N., Indianapolis, Ind.
Witherspoon, James, Allegheny, Pa.
Wolfe, Samuel M., Wilkes-Barre, Pa.
Wood, Alfred C., Philadelphia, Pa.
Wood, W. A., Hubbard, Tex.
Woods, George B., Curllsville, Pa.
Woolford, J. L. B., Chattanooga, Tenn.
Wray, William S., Philadelphia, Pa.
Wright, A. L., Carroll, Ia.
Wright, John W., Bridgeport, Conn.
Wyman, Hal C., Detroit, Mich.
Wyncoop, Gilbert H., Chicago, Ill.
Wyeth, John A., New York, N. Y.
Yocom, James R., Tacoma, Wash.
Young, Hugh Hampton, Baltimore, Md.
Young, S. J., Valparaiso, Ind.
Zapffe, Fred C., Chicago, Ill.
Zerner, H. E., New Castle, Pa.
Zobel, Alfred J., San Francisco, Cal.

Ophthalmology.

Adams, C. F., Trenton, N. J.
Allport, Frank, Chicago.
Amos, A. R., Des Moines, Iowa.
Alleman, L. A. W., Brooklyn, N. Y.
Appleman, Leighton F., Philadelphia.
Arnold, Francis J., Burlington, Vt.
Avery, F. T., Chicago.
Baker, A. R., Cleveland, Ohio.
Baker, Charles H., Bay City, Mich.
Balentine, Percy, Philadelphia.
Banner, C. W., Greensboro, N. C.
Banning, Geo. W., Davenport, Iowa.
Barck, Carl, St. Louis, Mo.
Barney, B. A., Hornell, N. Y.
Bastian, C. B., Williamsport, Pa.
Beetham, A. C., Bellaire, Ohio.
Bennett, A. G., Buffalo, N. Y.
Bermann, I., Washington, D. C.
Bernstein, Edw. J., Kalamazoo, Mich.
Bird, U. S., Tampa, Fla.
Bordley, James, Jr., Baltimore, Md.
Borch, J. L., Jr., Philadelphia, Pa.
Bradley, Cola, Columbus, O.
Brawley, R. V., Salisbury, N. C.
Broughton, William R., New York.
Brown, Felix Manning, Hopkinsville, Ky.
Brown, Frederick K., Philadelphia.
Brown, Samuel Horton, Philadelphia.
Bruns, H. Dickson, New Orleans, La.
Bruner, Wm. Evans, Cleveland, O.
Buchanan, Mary, Philadelphia.
Bull, Charles Stedman, New York.
Bull, Edward L., Jersey City, N. J.
Bullard, T. E., Schuylerville, N. Y.
Bulson, Albert E., Jr., Fort Wayne, Ind.
Butler, W. K., Washington, D. C.
Butt, Miriam M., Philadelphia.
Callan, Peter A., New York.
Carpenter, John T., Philadelphia.
Carrier, Frederick H., Philadelphia.
Carr, George W., Wilkesbarre, Pa.
Carroll, James J., Baltimore, Md.
Chambers, T. R., Jersey City, N. J.
Chance, Burton, Philadelphia.
Chase, William E., New York.
Clark, Frederick T., Westfield, Mass.
Cocks, Geo. H., New York.
Coleman, J. S., Frankfort, Ky.
Collins, Homer, Duluth, Minn.
Connor, Leartus, Detroit, Mich.
Coover, H., Denver, Colo.
Corser, J. B., Scranton, Pa.
Corson, G. R. S., Pottsville, Pa.
Craig, W. G., Springfield, Mass.
Cramer, Alfred, Camden, N. J.
Craton, S. B., Syracuse, N. Y.
Crockett, R. L., Oneida, N. Y.
Croskey, John Welsh, Philadelphia.
Crowe, Willis H., New Haven, Conn.
Cullom, M. M., Nashville, Tenn.
Curry, Glendon E., Pittsburg, Pa.
Darling, C. G., Chicago.
Davidson, John F., Richmond, Va.
Davis, F. J., Kanawha, Pa.
Davis, Thos. W., Winston-Salem, N. C.
Dean, Lee Wallace, Iowa City, Iowa.
Dickey, John L., Wheeling, W. Va.
Donovan, John J., Butte, Mont.
Driver, W. E., Norfolk, Va.
Duane, Alexander, New York.
Dunn, Ira J., Erie, Pa.
Edwards, James L., Columbia, Tenn.
Ellegood, J. A., Wilmington, Del.
Elliett, E. C., Memphis, Tenn.
Embery, Frank, Philadelphia.
Engle, O. C., Philadelphia.
Eves, Curtis C., George School, Pa.
Fenton, Thomas H., Philadelphia.
Finerty, J. J., Buffalo, N. Y.
Fisher, Wm. A., Syracuse.
Foster, Dean, New York.
Fowler, J. E., Altus, Okla.
Fox, L. Webster, Philadelphia.
Frank, Mortimer, Chicago.
Frankhauser, Fremont W., Reading, Pa.
Franklin, Clarence P., Philadelphia.
LeFever, C. W., Philadelphia.
Frey, Clarence D., Scranton, Pa.
Frickenberg, Percy, New York.
Friebis, George, Philadelphia.
Fringer, W. R., Rockford, Ill.
Gardner, C. R., Northampton, Mass.
Goldberg, Harold G., Philadelphia.
Gradle, Henry, Chicago.
Graef, Charles, New York.
Green, John, Jr., St. Louis, Mo.
Greenwood, Allen, Boston.
Grove, Benjamin H., Buffalo, N. Y.
Hallock, Silas F., New York.
Hammond, C. B., Nashua, N. H.
Hancock, James Cole, Brooklyn, N. Y.
Harris, C. M., Johnstown, Pa.
Harrod, Charles Lorain, Columbus, Ohio.
Haskin, H. P., Williamsport, Pa.
Hastings, T. W., New York.
Heckel, Edward B., Pittsburg, Pa.
Herbert, J. Frederick, Philadelphia.
Herron, J. T., Jackson, Tenn.
Hicks, W. D., Huntington, W. Va.
Higgins, R. P., Courtland, N. Y.
Hoskins, Morgan B., Palmer, Mass.
Holloway, T. R., Philadelphia.
Holmes, Christian R., Cincinnati, O.
Holt, Erastus E., Portland, Maine.
Howard, William E., Dallas, Texas.
Howe, Lucien, Buffalo, N. Y.
Hubbell, Alvin, Buffalo, N. Y.
Hulen, Yard H., San Francisco.
Ingalls, James W., Brooklyn, N. Y.
Irwin, Y. J., Springfield, Mass.
Jack, Edwin E., Boston.
Jackson, Edward, Denver, Colo.
Jacobson, F. C., Newark, N. J.
Jarvis, Cecil C., Pittsburg, Pa.
Johnson, J. H., Coffeyville, Kan.
Jones, Emmett L., Cumberland, Md.
Jones, E. R., Toms River, N. J.
Kalish, Richard, New York.
Keiper, George F., Lafayette, Ind.
Kelleher, P. F., Cambridge, Mass.
Kelley, Daniel J., Worcester, Mass.
Kimberlin, Joseph W., Kansas City, Mo.
King, George L., Alliance, Ohio.
Kirkendall, John S., Ithaca, N. Y.
Kistler, O. F., Wilkesbarre, Pa.
Knapp, Herman, New York.
Knipe, J. C., Philadelphia.
Koller, Carl, New York.
Krauss, Frederick, Philadelphia.
Kress, Palmer, Allentown, Pa.
Kunkle, W. F., Williamsport, Pa.
Lacy, John W., Denver, Colo.
Lambert, Walter Eyre, New York.
Lamon, G. T., New Kensington, Pa.
Lamb, Robert Scott, Washington, D. C.
Leach, W. J., New Albany, Ind.
Leary, Montgomery E., Rochester, N. Y.
Leidbetter, S. L., Birmingham, Ala.
Leopold, Isaac, Philadelphia.
Lester, John C., Brooklyn, N. Y.
Lewis, Eugene R., Dubuque, Iowa.
Lewis, F. Park, Buffalo, N. Y.
Lonchery, D. A., Parkersburg, W. Va.
Love, J. K., Easton, Pa.
Love, Louis F., Philadelphia.
McAllister, J. C., Ridgway, Pa.
McCabe, Edward M., New Haven, Conn.
McConachie, Alex. D., Baltimore, Md.
McDavitt, Thomas, St. Paul, Minn.
MacGregor, Charles, Dayton, Ohio.
McIntire, Charles, Easton, Pa.
McKee, Edwin D., Sugar Grove, Pa.
McReynolds, John O., Dallas, Texas.
Macleish, Archibald Lyle, Los Angeles, Cal.
Maisch, Aug. C., Hagerstown, Md.
Marlow, F. W., Syracuse, N. Y.
Marsh, W. A., Mt. Pleasant, Pa.
Marshall, George M., Portsmouth, Ohio.
Martin, Henry Hager, Savannah, Ga.
May, George A., Ann Arbor, Mich.
Meanor, W. C., Beaver, Pa.
Meierhof, Edward L., New York.
McVay, James C. F., Atlantic City, N. J.
Meyer, J. H. Wm., La Porte, Ind.
Miles, Henry S., Bridgeport, Conn.
Miller, Charles E., Muncie, Ind.
Miller, Elmer O., Aberdeen, S. D.

Mitchell, Samuel, Hornell, N. Y.
Mongel, Ernest B., Philadelphia.
Monesmith, O. B., Lorain, Ohio.
Moore, C. C., Philadelphia.
Moore, G. H., Schuylkill Haven, Pa.
Moore, J. H., Bridgeton, N. D.
Moore, Thomas W., Huntington, W. Va.
Mortimer, W. Golden, New York.
Mosegrove, James Ross, Steubenville, Ohio.
Muncaster, S. B., Washington, D. C.
Murray, G. D., Scranton, Pa.
Nance, Willis O., Chicago.
Oatman, Edward L., Brooklyn, N. Y.
Ohly, John H., Brooklyn, N. Y.
Oliver, Charles A., Philadelphia.
Osterling, H. E., Wheeling, W. Va.
Ormsm, D., Davis, Rochester, N. Y.
Parker, Edward F., Charleston, S. C.
Parker, Frank Judson, New York.
Parker, Walter R., Detroit, Mich.
Parks, Edward L., Boston.
Payne, Charles S., Liberty, N. Y.
Peterman, H. E., Baltimore, Md.
Pfingst, Adolph O., Louisville, Ky.
Pollard, W. K., Atlantic City, N. J.
Posey, Wm. Campbell, Philadelphia.
Powell, William R., Camden, N. J.
Price, Geo. H., Nashville, Tenn.
Price, Norman W., Niagara Falls, N. Y.
Prince, A. E., Springfield, Ill.
Pyle, Walter L., Philadelphia.
Radcliffe, McCluney, Philadelphia.
Ray, J. M., Louisville, Ky.
Reber, Wendell, Philadelphia.
Reik, J. M., Baltimore, Md.
Renaud, George L., Detroit, Mich.
Rideout, Wm. J., Freeport, Ill.
Rindlaub, J. H., Fargo, N. D.
Ring, G. Oram, Philadelphia.
Ring, Henry W., New Haven, Conn.
Risley, J. Norman, Philadelphia.
Risley, Lawrence I., Philadelphia.
Roderick, Edward R., Wilkesbarre, Pa.
Rodman, C. S., Waterbury, Conn.
Rogers, Frederick T., Providence, R. I.
Rothrock, Henry A., West Chester, Pa.
Russell, E. R., Charlotte, N. C.
Sartain, Paul J., Philadelphia.
Satterlee, Richard H., Buffalo, N. Y.
Sautter, Albert C., Philadelphia.
Savage, G. C., Nashville, Tenn.
Saylor, E. S., Philadelphia.
Scales, J. W., Pine Bluff, Ark.
Schaefer, Otto, Baltimore, Md.
Schild, Edward, Canton, Ohio.
Schneideman, T. B., Philadelphia.
Schoch, L. E., Shamokin, Pa.
Schwenk, Peter N. K., Philadelphia.
Seabrook, H. H., New York.
Sears, H. H., Huntington, Pa.
Sharpe, Albert H., Philadelphia.
Shastid, Wm. E., Pittsfield, Ill.
Shelton, H. P., Georgetown, Ohio.
Sherman, E. S., Newark, N. J.
Sherman, H. G., Cleveland, Ohio.
Shoemaker, J. F., St. Louis, Mo.
Shoemaker, Wm. T., Philadelphia.
Shope, Samuel Z., Harrisburg, Pa.
Shumway, Edward A., Philadelphia.
Simpson, J. D., Minneapolis, Minn.
Sites, J. McKee, Martinsburg, W. Va.
Smith, D. B., Cleveland, Ohio.
Smith, Eugene, Detroit, Mich.
Smith, Joseph L., Philadelphia.
Snyder, Walter H., Toledo, Ohio.
Standish, Myles, Boston.
Starr, Elmer G., Buffalo, N. Y.
Stevens, Henry B., Boston.
Stevenson, Mark D., Akron, Ohio.
Stick, Wesley Calvin, Hanover, Pa.
Stuart, Charles C., Cleveland, Ohio.
Sturm, S. A., Pittsburg, Pa.
Sweet, William M., Philadelphia.
Taylor, Lewis H., Wilkesbarre, Pa.
Tenney, John A., Boston.
Theobald, Samuel, Baltimore, Md.
Thomas, Chas. Hermon, Philadelphia.
Thompson, Peter Hunter, Boston.
Thomson, Edgar S., New York.
Thomson, Archibald G., Philadelphia.
Thorington, James, Philadelphia.
Tiffany, Flavel B., Kansas City, Mo.
Timberman, Andrew, Columbus, O.
Tingley, Louisa Paine, Boston.
Tivnen, Richard J., Chicago.
Todd, Frank C., Minneapolis, Minn.
Turnbull, Charles Smith, Philadelphia.
Turner, John B., Philadelphia.
Tybout, R. Raymond, Wilmington, Del.
Tyson, Henry H., New York.
Valk, Francis, New York.
Van Benschoten, George W., Providence, R. I.
Veasey, C. J., Philadelphia, Pa.
Vollmer, Karl, Davesport, Iowa.
Waite, Frank L., Hartford, Conn.
Walter, Will, Chicago.
Watt, Robert, Philadelphia.
Weeks, John Elmer, New York.
Wheeler, John T., Chatham, N. Y.
White, Amy E., Chester, Pa.
Wiener, M., St. Louis, Mo.
Wilder, Wm. H., Chicago.
Willetts, Joseph E., Pittsburg, Pa.
Williams, Charles H., Boston.
Williamson, Llewellyn, St. Louis, Mo.
Willis, F. D., Newport News, Va.
Wise, Ralph C., Millersburg, Ohio.
Wood, Casey A., Chicago.
Woodruff, Thomas A., Chicago.
Wooda, Hiram, Baltimore, Md.
Wright, Edward W., Brooklyn, N. Y.
Wurdemann, H. V., Milwaukee, Wis.
Wylie, Ella R., Boston.
Zentmayer, Wm., Philadelphia.
Ziegler, S. Lewis, Philadelphia.

Laryngology and Otology.

Abraham, Joseph H., New York.
Allen, John Howard, Portland, Me.
Anderson, Willis S., Detroit, Mich.
Baldwin, Kate W., Philadelphia.
Ballenger, William Lincoln, Chicago.
Bardes, Albert, New York.
Barnhill, John F., Indianapolis, Ind.
Bayley, B. Haverstraw, N. Y.
Beck, Joseph C., Chicago.
Bemis, R. W., Philadelphia.
Benedict, A. J., Newburg, N. Y.
Booth, Burton E., New York.
Britten, G. S., Syracuse, N. Y.
Broquet, Edward, New York.
Brown, George, Atlanta, Ga.
Brown, Josiah Cleveland, Portland, Me.
Brown, John Edwin, Columbus, Ohio.
Bryant, Wm. Sohier, New York.
Burns, Louis J., Philadelphia.
Butler, Harry, Bangor, Me.
Butler, M. F., Philadelphia.
Butler, Ralph, Philadelphia.
Byington, John F., Battle Creek, Mich.
Carpenter, E. R., El Paso, Texas.
Carr, M. L., New York.
Casselberry, W. E., Chicago.
Clementson, W. A., Braddock, Pa.
Coakley, Cornelius G., New York.
Cobb, Carolus M., Boston.
Colles, Christopher J., New York.
Colwell, N. P., Chicago.
Corwin, T. W., Newark, N. J.
Cott, George F., Buffalo, N. Y.
Cryer, M. H., Philadelphia.
Culp, John F., Harrisburg, Pa.
Cunningham, Frank M., Macon, Ga.
Curtis, H. H., New York.
Davis, George E., Lawrenceburg, Ky.
Demarest, Fred F. C., Passaic, N. J.
Dench, Edward B., New York.
Devilbiss, Allen, Toledo, Ohio.
Dickinson, R. M., Pittsburg, Pa.
Dillinger, G. Arthur, Pittsburg, Pa.
Dorias, H. Stokes, Atlantic City, N. J.
Dow, James A., Cambridge, Mass.
Duel, Arthur B., New York.
Ellis, H. Bert, Los Angeles, Cal.
Engle, Harry P., Newton, Iowa.
Farrington, F. McG., Memphis, Tenn.
Fielding, Fred G., Glens Falls, N. Y.
Felt, Carle Lee, Philadelphia.
Fleming, E. W., Los Angeles, Cal.
Fletcher, W. W., Williamsport, Pa.
Fosten, E., New Bedford, Mass.
Foster, Hal, Kansas City, Mo.
Freer, Otto T., Chicago.
Fretz, Oliver H., Quakertown, Pa.
Gotchell, Albert C., Worcester, Mass.
Gibb, Joseph S., Philadelphia.
Gilbert, Frank Y., Portland, Me.
Gildea, P. F., Colorado Springs, Colo.
Gile, Ben C., Philadelphia.
Gleason, E. B., Philadelphia.
Goldstein, Max A., St. Louis, Mo.
Goodale, J. L., Boston.
Gilntner, J. Henry, New York.
Hammond, Philip, Boston.
Harland, W. G. B., Philadelphia.
Hartman, J. H., Baltimore, Md.
Harte, Henry J., Detroit, Mich.
Hickey, Preston M., Detroit, Mich.
Hinkel, Frank Whitehill, Buffalo, N. Y.
Hirst, L. B., Camden, N. J.
Hitschler, William A., Philadelphia.
Horlbeck, Henry, Columbia, S. C.
Ingals, E. Fletcher, Chicago.
Jack, Frederick L., Boston.
Jackson, Chevalier, Pittsburg, Pa.
Keeler, J. Clarence, Philadelphia.
Kelchner, Wm. T., Camden, N. J.
Kerrison, Philip D., New York.
Knapp, C. C., Zanesville, Ohio.
Kofron, Joseph V., Cleveland, Ohio.
Kuyk, D. A., Richmond, Va.
Layman, Daniel W., Indianapolis, Ind.
Lenker, John N., Cleveland, Ohio.
Levy, Robert, Denver, Colo.
Loeh, Hanar W., St. Louis, Mo.
Ludlow, David Hunt, Easton, Pa.
McCaw, James F., Watertown, N. Y.
McClelland, Lefferts A., Brooklyn, N. Y.
McClure, W. B., Lexington, Ky.
MacCracken, Geo. Y., Philadelphia.
McDonald, D. J., New York.
McKernon, James F., New York.
Makuen, G. Hudson, Philadelphia.
Marshall, George Morley, Philadelphia.
Masland, H. C., Philadelphia.
Mayer, Emil, New York.
Mears, D. W., Scranton, Pa.
Miffer, Milton K., Wyncote, Pa.
Miller, Elizabeth K., Ridley Park, Pa.
Milligan, Robert, Pittsburg, Pa.
Miner, Stanley G., Detroit, Mich.
Mitchell, George W., Baltimore, Md.
Mithoefer, Wm., Cincinnati, Ohio.
Morgenthau, George, Chicago.
Moseley, Henry Perkins, New York.
Mosher, Harris P., Boston.
Mulcahy, Thomas A., New York.
Murphy, John W., Cincinnati, Ohio.
Myles, Robert C., New York.
Orf, Henry J., Philadelphia.
Orr, Charles C., St. Louis, Mo.
O'Shea, David, Chicago.
Ostrom, Louis, Rock Island, Ill.
Pennell, William W., Mt. Vernon, Ohio.
Phillips, Wendell C., New York.
Pierce, Elbridge W., Meriden, Conn.
Potts, Barton H., Philadelphia.
Pound, John C., Baltimore, Md.
Procter, Percy C., Boston.
Quinlan, Francis J., New York.
Randall, B. Alex., Philadelphia.
Raynor, Frank G., Brooklyn, N. Y.
Reddle, Jacobina S., Philadelphia.
Reik, Henry O., Baltimore, Md.
Renner, W. S., Buffalo, N. Y.
Richards, George L., Fall River, Mass.
Roe, John O., Rochester, N. Y.
Rogers, Albert E., Boston.
Romine, Geo. L., Lambertville, N. J.
Rom, Geo. T., Montreal, Canada.
Rulison, L. B., Watervliet, N. Y.
Sanger, Frank Dyer, Baltimore, Md.
Sauer, W. E., St. Louis, Mo.
Sawtell, J. E., Kansas City, Kan.
Schoonmaker, Perry, New York.
Seiss, Ralph W., Philadelphia.
Shambaugh, Geo. E., Chicago.
Shore, Francis E. V., Des Moines, Ia.
Shorter, James H., Macon, Ga.
Shurly, Burt R., Detroit, Mich.
Smock, Ledru P., Philadelphia.
Smith, F. Conger, New York.
Smith, Harmon, New York.
Smith, Owen, Portland, Maine.
Smith, S. MacQuen, Philadelphia.
Smyth, Herbert E., Bridgeport, Conn.
Solenberger, A. R., Colorado Springs, Colo.
Solis-Cohen, J., Philadelphia.
Somers, Lewis S., Philadelphia.
Steers, William H., Brooklyn, N. Y.
Stein, Otto J., Chicago.
Stimson, George Wm., Philadelphia.
Stolte, Herman, Milwaukee, Wis.
Stout, Geo. C., Philadelphia.
Stroune, Frederic M., Philadelphia.
Stubbs, F. Gurney, Chicago.
Stucky, J. A., Lexington, Ky.
Sturges, P. H., Brooklyn, N. Y.
Taylor, T. M., New York.
Teague, Rufus J., Durham, N. C.
Tefft, Benj. F., Jr., Anthony, R. I.
Tenney, Elmer S., Boston.
Thrasher, A. B., Cincinnati, Ohio.
Toms, S. W. S., Nyack, N. Y.
Vanmatt, E. L., Philadelphia.
Vaughan, G. E., Charleston.
Vaughan, Harold S., New York.
Wales, Ernest de Wolfe, Indianapolis, Ind.
Wardner, C. B., Philadelphia.
Weintraub, S. Louise, Philadelphia.
Wells, Walter A., Washington, D. C.
Welty, Cullen F., San Francisco.
White, Leon E., Boston.
Wilson, Samuel M., Philadelphia.
Winner, W. G., Wilmington, Del.
Winslow, John R., Baltimore, Md.
Wishart, J. Gibb, Toronto, Canada.
Worthington, Thos. Chew, Baltimore, Md.
Yankauer, Sidney, New York.

Hygiene and Sanitary Science.

Abbott, A. C., Philadelphia, Pa.
Abel, William C., West Union, W. Va.
Allen, M. K., Louisville, Ky.
Armstrong, S. T., New York, N. Y.
Barchfeld, A. J., Pittsburg, Pa.
Black, John J., New Castle, Del.
Briggs, A. B., Ashaway, R. I.
Brock, L. S., Morgantown, W. Va.
Brown, J. M., Chicago.
Brownback, O. W., Pendleton, Ind.
Browning, Chas. C., Monrovia, Cal.
Bushey, S. G., Camden, N. J.
Chapman, W. C., Toledo, O.
Cook, Charles H., Natick, Mass.
Craig, Joseph D., Albany, N. Y.
Crowder, Thos. R., Chicago, Ill.
Curtin, Roland G., Philadelphia, Pa.
Davis, Henry H., Camden, N. J.
Dithridge, Louise M., New York, N.Y.
Donaldson, W. H., Fairfield, Conn.
Egan, James A., Springfield, Ill.
Egbert, Seneca, Philadelphia, Pa.
Elgin, W. F., Glenolden, Pa.
Exton, James A., Arlington, N. J.
Farquhar, Charles, Olney, Md.
Foster, N. K., Sacramento, Cal.
Fox, Herbert, Philadelphia, Pa.
Friedrich, Martin, Cleveland, O.
Fulton, John S., Baltimore, Md.
Furbush, C. L., Philadelphia, Pa.
Gaylord, Charles W., Branford, Conn.
Gilliland, S. H., Marietta, Pa.
Goler, G. W., Rochester, N. Y.
Gottlieb, J. Adelphi, New York, N.Y.
Grice, Joseph, Portsmouth, Va.
Grosvenor, J. W., Buffalo, N. Y.
Guion, Edward, Atlantic City, N. J.
Hallenbeck, O. J., Canandaigua, N.Y.
Harbaugh, C. H., Philadelphia, Pa.
Harrington, Charles, Boston, Mass.
Holden, G. W., Denver, Colo.
Holton, Henry D., Brattleboro, Vt.
Howard, D. C., Washington, D. C.
Humsberger, J. Newton, Skippack, Pa.
Irion, Clifford H., New Orleans, La.
Jacobi, A., New York, N. Y.
Jones, C. Hampson, Baltimore, Md.
Kennedy, T. C., Shelbyville, Ind.
Kerr, J. W., Washington, D. C.
Keyes, Edw. L., Jr., New York, N. Y.
Knopf, S. A., New York, N. Y.
Kober, George M., Washington, D. C.
Lewis, Denslow, Chicago, Ill.
Lowenstein, Fred P., Westfield, Mass.
McCaughlin, George E., Jersey City, N. J.
McCormack, J. N., Bowling Green, Ky.
McDowell, Norris Stanley, Philadelphia, Pa.
McLennan, R. C., Syracuse, N. Y.
McPherson, Dorsey M., Washington, D. C.
Magruder, G. Lloyd, Washington, D. C.
Maison, Robert S., Chester, Pa.
Mitchell, Henry, Trenton, N. J.
Montgomery, Liston Homer, Chicago, Ill.
Motter, Murray Galt, Washington, D. C.
Nagle, John T., New York, N. Y.
Newton, Richard Cole, Montclair, N. J.
Otis, Edward Osgood, Boston, Mass.
Paquin, Paul, Asheville, N. C.
Park, Wm. H., New York, N. Y.
Pedigo, S. E. G., Marshfield, O.
Wilcher, James E., Carlisle, Pa.
Porter, Joseph H., Key West, Fla.
Read, Albert J., Battle Creek, Mich.
Reinhardt, G. F., Berkeley, Cal.
Rembert, G. W. F., Wallingford, Conn.
Richard, Charles, New York.
Risley, E. N., Battle Creek, Mich.
Robin, Albert, Wilmington, Del.
Sanders, Wm. H., Montgomery, Ala.
Seaman, Wm., U. S. Navy.
Sell, Frederick W., Rahway, N. J.
Shumway, F. W., Lansing, Mich.
Shurtleff, Henry C., Philadelphia.
Slack, F. H., Boston.
Smith, M. R., McGraw, N. Y.
Snow, William F., Stanford University, Cal.
Stern, Charles S., Hartford, Conn.
Steward, Alonzo H., Philadelphia.
Stolper, J. H., Krebs, Okla.
Sturgis, Frederic R., New York.
Sulter, A. Walter, New York.
Sullivan, T. J., Butte, Mont.
Vinton, Maria M., East Orange, N. J.
Webster, George W., Chicago.
Welch, William M., Philadelphia.
Wheaton, Clarence L., Chicago.
White, C. Y., Philadelphia.
Wilbur, Cressy L., Washington, D. C.
Wiley, Harvey W., Washington, D. C.
Wyman, Walter, Washington, D. C.

V 4
190

Diseases of Children.

Abt, Isaac Arthur, Chicago.
Acker, George N., Washington, D. C.
Acker, T. J., Croton-on-Hudson, N. Y.
Ager, Louis C., Brooklyn, N. Y.
Anthony, F. R., Maryville, Mo.
Bartley, Elias H., Brooklyn, N. Y.
Bauer, Marie L., Philadelphia.
Bennett, C. L., Goldsville, Mich.
Bennett, William H., Philadelphia.
Berry, R. D., Springfield, Ill.
Bingham, Arthur W., East Orange, N. J.
Blanton, M. A., Baileyton, Tenn.
Boorse, Lorenzo, Milwaukee, Wis.
Bowyer, F. F., Jersey City, N. J.
Bowyer, M. A., Philadelphia.
Bradley, William N., Philadelphia.
Brown, Alice Barlow, Chicago.
Brown, C. Wm., Elmira, N. Y.
Burritt, H. M., Kendall, N. Y.
Butterworth, W. W., New Orleans, La.
Carter, Chas. Edgerton, New York.
Cassidy, Paul B., Philadelphia.
Cattermole, G. H., Boulder, Colo.
Chaffee, Francis, Towanda, Pa.
Chesebro, Edmund D., Providence, R. I.
Churchill, Frank S., Chicago.
Clark, W. R., East Liverpool, Ohio.
Coit, Henry L., Newark, N. J.
Cook, John C., Chicago.
Cotting, M. J., Philadelphia.
Cotton, Alfred C., Chicago.
Day, Fessenden L., Bridgeport, Conn.
Dice, Laura J., York, Pa.
Douglas, Charles, Detroit, Mich.
Earle, Clarence A., Des Plaines, Ill.
Ellis, A. Lee, Baltimore, Md.
Elterich, Theodore J., Pittsburg, Pa.
English, D. E., Mill Burn, N. J.
Farr, William W., Philadelphia.
Fay, William E., Boston.
Fairbanks, Arthur Willard, Boston.
Ferguson, Albert D., Philadelphia.
Fink, Harry M., Pittsburg, Pa.
Fischer, Louis, New York.
Flanders, C. F., Manchester, N. H.
Fleming, Walter S., Mt. Vernon, N. Y.
Fraley, Frederick, Philadelphia.
Freeman, Albert H., Starke, Fla.
Freeman, Roland G., New York.
Freund, H. H., Philadelphia.
Friedlander, Alfred, Cincinnati, O.
Garber, J. B., Dunkirk, Ind.
Garside, C. Z., Newark, N. J.
Gengenbach, Frank P., Denver, Colo.
George, Aria Wellington, Boston.
Gilbert, R. B., Louisville, Ky.
Gochnauer, F., Upperville, Va.
Good, Wm. Harmar, Philadelphia.
Goodenough, Edward W., Waterbury, Conn.
Graham, E. E., Philadelphia.
Green, Henry, Dothan, Ala.
Griffith, J. P. Crozer, Philadelphia.
Gutmann, Jacob, New York.
Hamill, S. McC., Philadelphia.
Hamrick, R. H., Pratt City, Ala.
Hand, Alfred, Jr., Philadelphia.
Harvey, Edwin B. Boston.
Hemans, G. A., Hamilton, Ohio.
Hill, Howard Kennedy, Philadelphia.
Hollopeter, W. C., Philadelphia.
Holmes, Arthur D., Detroit, Mich.
Hughes, Frederic J., Plainfield, N. J.
Hulett, Horace L., Allentown, N. Y.
Hume, John E., Philadelphia.
Ingham, Roy McFee, New York.
Jackson, J., Matawan, N. J.
Johnson, Loren B. T., Washington, D. C.
Johnson, C. K., Burlington, Vt.
Johnstone, Mary M. S., Chicago.
Jones, Eleanor C., Philadelphia.
Kahrs, W. H., New York.
Kelly, Michael, Fall River, Mass.
Kelley, Samuel W., Cleveland, Ohio.
Kennedy, Lucius C., Scranton, Pa.
Kenney, F. W., Denver, Colo.
Kerley, Charles Gilmore, New York.
Kilmer, Theron Wendell, New York.
Knipe, Reinoehl, Norristown, Pa.
Knox, J. H. Mason, Jr., Baltimore, Md.
Koehler, Gottfried, Chicago.
LeBoutillier, Theodore, Philadelphia.
Leech, Frank, Washington, D. C.
Levi, I. Valentine, Philadelphia.
Livingston, E. P., New York.
Long, Wm. W., Birmingham, Ala.
Lopez, Joseph H., Philadelphia.
Loughran, Frederic W., New York.
Lowenburg, H., Philadelphia.
Ludlum, Walter D., Brooklyn, N. Y.
Lytle, Frank P., Birdsboro, Pa.
McAlister, Alexander, Camden, N. J.
McAniff, Hugh P., Philadelphia.
McClanahan, H. M., Omaha, Neb.
McIlwain, Wm., Lone Wolf, Okla.
McVea, Charles, Baton Rouge, La.
Madden, T. W., Collingswood, N. J.
Mallon, Edward A., Philadelphia.
Manley, James A., Scranton, Pa.
Meadows, W. J., Greensboro, N. C.
Mercer, A. Clifford, Syracuse, N. Y.
Merrick, Robert M., Boston.
Miller, John B., Sligo, Pa.
Milligan, Josephine, Jacksonville, Ill.
Mills, H. Brooker, Philadelphia.
Mitchell, E. W., Cincinnati, Ohio.
Montgomery, R. H., Youngstown, O.
Moorman, Lewis J., Leitchfield, Ky.
Morse, John Lovett, Boston.
Mowry, Jesse E., Providence, R. I.
Murphy, Walter G., East Hartford, Conn.
Nielsen, Louis B., Honesdale, Pa.
Orr, R. Winnett, Lincoln, Neb.
Ostheimer, Martin J., Philadelphia.
Palmer, Henry E., Tallahassee, Fla.
Parke, Thomas D., Birmingham, Ala.
Pearse, Richard A., Brigham, Utah.
Pfleger, Henry F., Philadelphia, Pa.
Pinneo, Frank W., Newark, N. J.
Pisek, Godfrey R., New York.
Piskorski, Abden V., Jersey City, N. J.
Plymire, I. Swartz, Doylestown, Pa.
Powell, Oscar L., Onancock, Va.
Read, Henry N., Brooklyn, N. Y.
Rosenthal, Edwin, Philadelphia.
Rotch, Thomas Morgan, Boston.
Rowland, Russell Sturges, Detroit, Mich.
Royster, L. T., Norfolk, Va.
Ruhrah, John, Baltimore, Md.
Ryan, Granville N., Des Moines, Ia.
Schell, J. Thompson, Philadelphia.
Schisler, Belle A., Philadelphia.
Sharpe, F. L., Waterville, N. C.
Shaw, Henry L. K., Albany, N. Y.
Sherk, H. H., Camden, N. J.
Silver, Lewis M., New York.
Slaight, Mary J., Rochester, N. Y.
Small, Edward A., Pittsburg, Pa.
Smith, H. F. M., Orange, Mass.
Snyder, J. Ross, Birmingham, Ala.
Southworth, Thomas S., New York.
Stall, A. H., Barberton, Ohio.
Sylvester, Charles P., Boston.
Tate, Robert W., Bolivar, Tenn.
Thomas, F. O., Hopkinsville, Ky.
Todd, Francis H., Syracuse, N. Y.
Townsend, H. S., Buffalo, N. Y.
Tuley, Henry Enos, Louisville, Ky.
Van Derslice, J. W., Oak Park, Ill.
Van Gaasbeek, Geo. H., Kingston, N. Y.
Warlow, Margaret A., Philadelphia, Pa.
Watson, W. T., Lexington, Tenn.
Welburn, W. C., Baltimore, Va.
Wentworth, Arthur H., Boston.
Weston, William, Columbia, S. C.
Williams, C. B., Philippi, W. Va.
Woodburn, Skiles M., Towanda, Pa.
Wolff, H. S., Memphis, Tenn.
Woodcock, G. A., Armstrong, Iowa.
Woodman, Daniel N., Yarmouthville, Maine.
Woolery, Perry, Heltonville, Ind.
Wynkoop, Edward J., Syracuse, N. Y.

Nervous and Mental Diseases.

Adamson, H. K., Maysville, Ky.
Allen, Alfred Reginald, Philadelphia.
Arlitz, William J., Hoboken, N. J.
Barstow, J. M., Council Bluffs, Ia.
Beebe, Brooks F., Cincinnati, Ohio.
Beling, Christopher C., Newark, N. J.
Belt, Henry, New York.
Benton, G. H., Chester, W. Va.
Bond, George F. M., Yonkers, N. Y.
Bowman, D. S., Akron, Ohio.
Boyer, Henry P., Philadelphia.
Brown, Frederick W., Franklin, Pa.
Burr, Charles W., Philadelphia.
Camp, Carl D., Philadelphia, Pa.
Campbell, C. R., Chester, W. Va.
Campbell, James, Elgin, Ill.
Campbell, J. A., Wheeling, W. Va.
Caples, Byron M., Waukesha, Wis.
Chase, Robert H., Philadelphia.
Cleaves, Margaret A., New York.
Coe, Henry W., Portland, Oregon.
Connor, Guy L., Detroit, Mich.
Cook, R. Harvey, Oxford, Ohio.
Cort, Paul L., Trenton, N. J.
Crafts, Leo M., Minneapolis, Minn.
Crothers, T. D., Hartford, Conn.
Dercum, F. X., Philadelphia.
Deuschle, William D., Columbus, O.
Diefendorf, A. R., Middletown, Conn.
Drayton, H. S., New York.
Drewry, William F., Petersburg, Va.
Dunlap, Mary J., Vineland, N. J.
Fahner, Augustus A., Philadelphia.
Evans, William, Philadelphia.
Fisher, John C., Elmira, N. Y.
Fisher, William E., Middletown, Conn.
Foster, George V., New York.
Gordon, Alfred, Philadelphia.
Gorton, E., Summit, N. J.
Gregory, Menas S., New York.
Gregory, Walter E., Dansville, N. Y.
Grinker, Julius, Chicago.
Gundry, Lewis H., Relay, Md.
Haines, J. Clifford, Vincentown, N. J.
Hancker, William H., Farnhurst, Del.
Harvey, Olin F., Wilkesbarre, Pa.
Hawke, W. W., Philadelphia, Pa.
Hazlett, Edgar M., Washington, Pa.
Healy, William, Chicago.
Hepler, Albert J., New Bethlehem, Pa.
Herman, C. C., Pittsburg, Pa.
Hill, S. S., Wernersville, Pa.
Hinkle, Beatrice M., New York.
Hodges, J. Allison, Richmond, Va.
Hughes, Chas. H., St. Louis, Mo.
Huntington, Geo., Hopewell Junction, N. Y.
Hurd, M. E., Lajose, Pa.
Ingham, S. D., Philadelphia, Pa.
Ives, Augustus W., Detroit, Mich.
Jelliffe, Smith Ely, New York.
Jones, Wm. Alexander, Minneapolis, Minn.
Klingmann, Theophil, Ann Arbor, Mich.
Kradwell, William Theodore, Wauwatosa, Wis.
Learned, John Barr, Northampton, Mass.
Leszynsky, Wm. M., New York.
Lloyd, James Hendrie, Philadelphia.
Lovejoy, Bradford C., Syracuse, N. Y.
Lucas, Henry H., Paterson, N. J.
Lynch, John A., Bridgeport, Conn.
McAdam, Wm., Pittsburg, Pa.
McBride, James H., Pasadena, Cal.
MacCoy, William E., Brookline, Mass.
McCarthy, D. J., Philadelphia.
McCaw, William J., Providence, R. I.
McClellan, James S., Bellaire, Ohio.
McGregor, Robert, Saginaw, Mich.
McNeil, G. W., Pittsburg, Pa.
Mallon, P. S., Morris Plains, N. J.
Mason, Lewis D., Brooklyn, N. Y.
Mailhouse, Max, New Haven, Conn.
Mettler, L. Harrison, Chicago.
Miller, Vesta D., Needham, Mass.
Mills, Charles K., Philadelphia.
Millspaugh, Daniel T., Paterson, N. J.
Morrow, Charles H., Gloucester, Mass.
Mosher, Eliza M., Brooklyn, N. Y.
Nevin, Ethan A., Ogdensburg, N. Y.
Newbold, Henry J., Philadelphia.
Nicholson, Wm. A., Franklin, Pa.
Ordway, Mabel D., Boston.
Ostrander, Herman, Kalamazoo, Mich.
Parker, Moses Greeley, Lowell, Mass.
Parker, Spotswood H., Sonyea, N. Y.
Patrick, Hugh T., Chicago.
Post, Frank S., Pittsburg, Pa.
Potts, Charles S., Philadelphia.
Prince, Morton, Boston.
Punton, John, Kansas City, Mo.
Rhein, John H. W., Philadelphia.
Richardson, Wm. W., Norristown, Pa.
Riggs, George H., Ijamsville, Md.
Riley, W. H., Battle Creek, Mich.
Robic, W. F., Baldwinville, Mass.
Robinson, W., Philadelphia.
Rodebaugh, H. A., Columbus, Ohio.
Rosenthal, H. A., Bridgeport, Ohio.
Rucker, S. T., Memphis, Tenn.
Sconsmaker, Irving R., Hallstead, Pa.
Sedgwick, H. M., Peoria, Ill.
Seem, A. A., Bangor, Pa.
Shanahan, William T., Sonyea, N. Y.
Shaw, Joseph B., Trenton, N. J.
Shellenberger, Edward B., Warren, Pa.
Sherman, Jeanette H., Norristown, Pa.
Shipps, William H., Bordentown, N. J.
Simpson, F. T., Hartford, Conn.
Smith, J. Anson, Blackwood, N. J.
Snow, William Benham, New York.
Spiller, Wm. G., Philadelphia.
Spink, Mary A., Indianapolis, Ind.
Stanley, Charles E., Middletown, Conn.
Stephenson, F. H., Syracuse, N. Y.
Sterne, Albert E., Indianapolis, Ind.
Stoddard, A. J., Columbus, Ohio.
Sullivan, Wm. J., Lawrence, Mass.
Sutton, H. T., Zanesville, Ohio.
Taylor, Isaac M., Morganton, N. C.
Taylor, Madison, Philadelphia.
Thomas, H. M., Baltimore, Md.
Tomlinson, H. A., St. Peter, Minn.
Walling, Wm. H., Atlantic City, N. J.
Walton, George L., Boston.
Webster, J. Bart, Atlantic City, N. J.
Weblan, Alma Louise, Scranton, Pa.
Wehlan, L., Scranton, Pa.
Weisenburg, T. H., Philadelphia.
West, K. S., Cleveland, Ohio.
Woods, Matthew, Philadelphia.
Work, Hubert, Pueblo, Colo.
Zabriskie, Edwin Garvin, New York.
Zenner, Philip, Cincinnati, Ohio.

Stomatology.

Batten, John Mullen, Downingtown, Pa.
Blum, Richard, New York.
Bogue, Edward A., New York.
Branigan, E. W., Boston.
Brophy, Truman W., Chicago.
Brown, Geo. V. L., Milwaukee, Wis.
Bush, Charles B., Orbisonia, Pa.
Byrd, W. G., Isola, Miss.
Clough, Gilman H., Dexter, Maine.
Corbin, M. L., Ellenboro, W. Va.
Dailey, Wilber M., New York.
Daland, Judson, Philadelphia.
Emmerling, C., Pittsburgh, Pa.
Enfield, Walter F., Bedford, Pa.
Evans, A. L., Bonneterre, Mo.
Evans, John King, Malvern, Pa.
Faught, Francis Ashley, Philadelphia, Pa.
Fish, Charles N., Los Angeles, Cal.
Fossume, F. L., New York.
Gifford, U. Grant, Avondale, Pa.
Gorman, J. A., Philadelphia.
Grady, Richard, Annapolis, Md.
Hollingshead, I. W., Philadelphia.
Irwin, Alphonso, Camden, N. J.
Jackson, Sarah G., Vineland, N. J.
Latham, V. A., Chicago.
Lilley, W. M., Brownsville, Pa.
Lockie, S. B., Chester, Pa.
McManus, James, Hartford, Conn.
McNaul, C. G., Glen Richey, Pa.
Miller, Valerius A., Lake Arthur, La.
Newberry, J. M., Jarvisburg, N. C.
Oliver, Robert T., West Point, N. Y.
Potter, William H., Boston.
Power, J. E., Providence, R. I.
Ray, George S., Erie, Pa.
Register, Henry C., Philadelphia.
Schamberg, Morris I., New York.
Simonton, Thomas Grier, Pittsburg, Pa.
Stellwagen, Thos. C., Philadelphia.
Talbot, Eugene S., Chicago.
Tuten, J. G., Jesup, Ga.
Walton, R. D., Frankfort, Maine.
Waugh, Wm. F., Chicago.
Williams, Roger, Pittsburg, Pa.

Cutaneous Medicine and Surgery.

Anderson, A., New Britain, Conn.
Baum, Henry Clay, Syracuse, N. Y.
Baum, William L., Chicago.
Bierhoff, Frederic, New York.
Boehm, Joseph L., St. Louis, Mo.
Boggs, Russell H., Pittsburg, Pa.
Bookwalter, Harry, Columbiana, O.
Bready, C. R., Philadelphia.
Brotherlin, Henry Hale, Hollidaysburg, Pa.
Bull, Thomas M., Naugatuck, Conn.
Bulkley, L. Duncan, New York.
Butler, George E., Fall River, Mass.
Campbell, R. R., Chicago.
Collings, S. P., Hot Springs, Ark.
Corlett, William Thomas, Cleveland, Ohio.
Corwin, R. W., Pueblo, Colo.
Dean, Geo. R., Spartanburg, S. C.
Farrell, John T., Providence, R. I.
Field, Geo. J., Salt Lake, Utah.
Fleck, Edward B., Philadelphia.
Fordyce, John A., New York.
Foster, B. B., Portland, Maine.
Fox, George Howard, New York.
Friedrich, Leon L., Washington, D.C.
Gaichel, A. L., New York.
Gold, James Douglas, Bridgeport, Conn.
Gotthelf, Wm. G., New York.
Hartzell, M. B., Philadelphia.
Heidingsfeld, M. L., Cincinnati, O.
Hetherington, William, Jersey City, N. J.
Hirsch, Charles L., Philadelphia.
Hixon, Edwin C., Boston.

Holder, Oscar H., New York.
Howe, Wm., Shingle House, Pa.
Jackson, George T., New York.
Johnson, Frank M., Boston.
Jones, Seth W., Franklin, N. H.
Kassabian, Mihran K., Philadelphia.
Kellow, W. J., Watertown, N. Y.
Kessler, R. B., Iowa City, Iowa.
Kinch, Charles A., New York.
Klotz, H. G., New York.
LeRoy, Bernard R., Athens, Ohio.
Lytle, Isaac Walter, Philadelphia.
McDonnell, R. A., New Haven, Conn.
MacGowan, Granville, Los Angeles, Cal.
Mook, William H., St. Louis, Mo.
Moran, McCandlish M., Pinners, Va.
Ober, Geo. Eugene, Bridgeport, Conn.
Ochs, Benjamin F., New York.
Palmer, Albert Lee, Minn.
Piffard, H. G., New York.
Price, S. W., Scarbro, W. Va.
Pusey, Wm. Allen, Chicago.
Ravogli, Augustus, Cincinnati, Ohio.
Reeser, Richard, Columbia, Pa.
Rich, R. G., David City, Neb.
Rodenbaugh, N. F., Barberton, Ohio.
Rosenheim, P. J., New York.
Rosenthal, M., Cape Girardeau, Mo.
Rosenthal, Melvin S., Baltimore, Md.
Rostenberg, Adolph, New York.
Schamberg, Jay Frank, Philadelphia.
Scott, W. S., Chillicothe, Ohio.
Sharpe, Edward S., Atlantic, N. J.
Shoemaker, Harlan, Philadelphia.
Shoninger, Leo S., New York.
Slaughter, Charles H. P., Philadelphia, Pa.
Stearns, B. W., Binghamton, N. Y.
Stelwagon, Henry W., Philadelphia.
Swarts, Gardner T., Providence, R. I.
Taggart, Thos. D., Atlantic City, N.J.
Tompkins, J. Edward, Fredericksburg, Va.
Townsend, Terry M., New York.
Townsend, W. W., Rutland, Vt.
Valentine, J. J., New York.
Varney, H. R., Detroit, Mich.
Wakeley, E. H., Big Flats, N. Y.
Wallhauser, H. J. F., Newark, N. J.
Wallis, J. Frank, Norristown, Pa.
Weiss, Ludwig, New York.
Whitehouse, Henry H., New York.
Wilson, Chas. W., Vineland, N. J.
Winfield, J. M., Brooklyn, N. Y.
Wolbarst, Abraham Leo, New York.

Pharmacology and Therapeutics.

Abbott, W. C., Chicago.
Am Ende, C. G., New York.
Ball, Otto F., St. Louis, Mo.
Barnes, Noble P., Washington, D. C.
Barothy, A. M., Chicago.
Benedict, A. L., Buffalo, N. Y.
Butler, George F., Wilmette, Ill.
Cecil, G. E., Flat Lick, Ky.
Chamberlin, C. S., Cincinnati, Ohio.
England, Joseph W., Philadelphia.
Fussell, M. H., Philadelphia.
Gichner, Joseph E., Baltimore, Md.
Hallberg, C. S. N., Chicago.
Hannum, Alberto, Pa.
Hatcher, Robt. A., New York.
Hill, W. B., Milwaukee, Wis.
Houghton, E. M., Detroit, Mich.
Jenne, J. N., Chittenden, Vt.
Kline, W. J. K., Greensburg, Pa.
Lewi, Wm. G., Albany, N. Y.
Lewis, H. Edwin, New York City.
Lown, Clemens B., Philadelphia.
Mackinney, William H., Philadelphia.
Mayer, Louis H., Johnstown, Pa.
McDowell, Alexander B., New York.
Osborne, Oliver T., New Haven, Conn.
Packner, W. A., Chicago.
Reade, Frank M., Richmond, Va.
Reilly, Thomas H., New York.
Remington, Joseph P., Philadelphia.
Riley, Casilus M., St. Louis, Mo.
Robinson, William J., New York.
Sadtler, S. P., Philadelphia.
Simmons, George H., Chicago.
Skinner, Lewis C., Davidson, N. C.
Slack, Henry R., LaGrange, Ga.
Snively, I. Newton, Philadelphia.
Solis-Cohen, Solomon, Philadelphia.
Sprowls, J. A., Claysville, Pa.
Stern, Heinrich, New York.
Stewart, W. Blair, Atlantic City, N. J.
Taylor, C. F., Philadelphia.
Taylor, John J., Philadelphia.
Thrush, M. Clayton, Philadelphia.
Tompkins, W. W., Charleston, W. Va.
Tyrode, Maurice V., Boston.
Uhle, Alexander A., Philadelphia.
Webb, C. W., Wellsboro, Pa.
Wescott, W. C., Atlantic City, N. J.
Wilbert, M. I., Philadelphia.
Wood, Horatio C., Jr., Philadelphia.
Woodbury, Frank, Philadelphia.

Pathology and Physiology.

Adami, J. George, Montreal.
Adler, Isaac, New York, N. Y.
Beates, Henry, Jr., Philadelphia, Pa.
Beebe, S. P., New York, N. Y.
Bergey, D. H., Philadelphia, Pa.
Bierring, Walter L., Iowa City, Ia.
Bolin, J. Albert, Philadelphia, Pa.
Boyle, J. A., Buffalo, N. Y.
Cadbury, Wm. W., Philadelphia, Pa.
Caldwell, E. W., New York, N. Y.
Carnon, Walter B., Boston, Mass.
Cattell, Henry W., Philadelphia, Pa.
Christian, Henry A., Boston, Mass.
Cocklin, C. C., Harrisburg, Pa.
Colver, Benton, Battle Creek, Mich.
Coplin, W. M. L., Philadelphia, Pa.
Day, Mary Gage, Kingston, N. Y.
Dederick, A. S., Troy, N. Y.
Ellis, A. G., Philadelphia, Pa.
Finder, Wm., Jr., Troy, N. Y.
Flick, Lawrence, Philadelphia, Pa.
Graham, Henry G., Bellwood, Neb.
Hall, Winfield S., Chicago, Ill.
Herb, Isabella C., Chicago, Ill.
Hitchens, A. Parker, Glen Olden, Pa.
Holland, James W., Philadelphia, Pa.
Hunt, Ernest L., Worcester, Mass.
Jack, Geo. N., Buffalo, N. Y.
Jackson, J. Henry, Barre, Vt.
Johnson, J. C., Atlanta, Ga.
Kotz, A. L., Easton, Pa.
Langdon, Robert M., Englewood Cliffs, N. J.
Littorin, Wm., Nashville, Tenn.
Longcope, Warfield T., Philadelphia.
Lodholz, Edward, Philadelphia.
Lusk, Graham, New York, N. Y.
MacCallum, W. G., Baltimore, Md.
Manning, Isaac H., Chapel Hill, N.C.
Marple, W. B., New York, N. Y.
McClintock, John T., Iowa City, Ia.
McConnell, Guthrie, St. Louis, Mo.
McFarland, Joseph, Philadelphia, Pa.
Meader, Isabel M., Watertown, N.Y.
Milner, M. T., Warrensville, Pa.
Moak, Harris, Brooklyn, N. Y.
Nusbaumer, Pauline S., Oakland, Cal.
Phillips, J. McL., Columbus, O.
Pratt, Joseph H., Boston, Mass.
Pritchard, William Percival, Fall River, Mass.
Ravenel, Maxvck, Philadelphia, Pa.
Rosenau, M. J., Washington, D. C.
Rosenberger, R. C., Philadelphia, Pa.
Ruediger, Gustav F., Chicago, Ill.
Russell, Frederick F., U. S. Army.
Schoney, L., New York.
de Schweinitz, G. E., Philadelphia, Pa.
Shields, Wm. G., Jr., Philadelphia, Pa.
Smith, Claude A., Atlanta, Ga.
Stokes, Wm. Royal, Baltimore, Md.
Turck, Fenton B., Chicago, Ill.
Walker, Thaddeus, Detroit, Mich.
Wayne, J. Robert, North Little Rock, Ark.
Welch, William H., Baltimore, Md.
Wetherill, Henry Emerson, Philadelphia, Pa.
Wilson, John D., Philadelphia, Pa.
Wood, Harold B., Philadelphia, Pa.
Wynn, Charles A., Greensburg, Pa.
Wynn, Frank B., Indianapolis, Ind.

Miscellaneous.

A. THOSE WHO EXPRESSED NO PREFERENCE FOR ANY SECTION.

Ackerman, John, Erie, Pa.
Alexander, A. F., Paterson, N. J.
Alling, Charles P., Minneapolis, Minn.
Amerman, C. E., Linton, Ind.
Anderson, Paul V., Morganton, N. C.
Anderson, U. Grant, Carbondale, Pa.
Anderson, W. B., Brownwood, Tex.
Atherton, Andrew L., Atlantic City, N. J.
Atkinson, F., Fort Benton, Mont.
Austin, W. S., Knoxville, Tenn.
Axline, J. H., Lancaster, O.
Barber, C. L., Lansing, Mich.
Barcus, A. L., Philadelphia, Pa.
Barger, W. T., Cleveland, O.
Barton, Geo. C., Minneapolis, Minn.
Bauer, Louis G., Philadelphia, Pa.
Bauer, Rud. F., Philadelphia, Pa.
Bell, Wm. H., Washington, D. C.
Berlet, James F., Philadelphia, Pa.
Bland, P. B., Philadelphia, Pa.
Bochroch, M. H., Philadelphia, Pa.
Boon, W. Thomas, Manayunk, Pa.
Bowen, C. R., Almond, N. Y.
Bowman, John H., Berwick, Pa.
Brown, Joel D., Oaks, Pa.
Brown, Percy, Boston, Mass.
Burt, N. Howard, Ocean City, N. J.
Burton, Hiram R., Lewes, Del.
Callahan, Andrew, Philadelphia, Pa.
Cameron, John Lawson, Philadelphia, Pa.
Cantwell, Frank V., Trenton, N. J.
Carney, Thomas J., New York, N. Y.
Carrell, R., Hadley, Pa.
Carson, F. W., Waymont, Pa.
Claxton, Charles, Philadelphia, Pa.
Cole, Lewis Gregory, New York, N.Y.
Coleman, C., Buena Vista, Va.
Collier, William, Trenton, N. J.
Cooper, W. Grant, Ogdensburg, N.Y.
Cook, Hugh F., Newark, N. J.
Coon, J. W., Wauwatosa, Wis.
Corson, E. S., Bridgeton, N. J.
Cragwall, Albert O., Stephenville, Tex.
Croft, J. W., Waynesboro, Pa.
Curtice, L. E., Buffalo, N. Y.
Cuskaden, Albert D., Atlantic City, N. J.
Dadman, Eliza Josephine, Boston, Mass.
Dalton, H. C., St. Louis, Mo.
Davis, A. E., New York, N. Y.
Davis, John S., Lovelaceville, Ky.
Devitt, B. F., Philadelphia, Pa.
Dew, R. B., Salem, W. Va.
Dixon, Samuel G., Hyn Mawr, Pa.
Donnelly, Florence E., Conshohocken, Pa.
Donohue, F. O., Syracuse, N. Y.
Drake, G. W., Hollins, Va.
Dufour, C. R., Washington, D. C.
Dugan, John, Albion, N. Y.
Dye, Hobart S., Washington, D. C.
Ellenberger, J. W., Harrisburg, Pa.
English, David C., New Brunswick, N. J.
Evans, F. J., Chester, Pa.
Ewen, W. L., Alloway, N. J.
Fay, John, Altoona, Pa.
Fetterolf, D. W., Philadelphia, Pa.
Fife, Charles A., Philadelphia, Pa.
Finegan, Daniel J., Gloucester, Mass.
Fisler, C. F., Clayton, N. J.
Fiske, E. L., Fitchburg, Mass.
Fleming, Thomas J., Philadelphia, Pa.
Foster, J. P. C., New Haven, Conn.
Friedenberg, Samuel, Philadelphia, Pa.
Fry, Samuel, Washington, D. C.
Gamber, W. P., Stanton, Mich.
Gibson, Edwin Lacy, Staunton, Va.
Gibson, P., Homer, La.
Gleaves, O. G., St. Joseph, Mo.
Grinnell, Y. M., Fredonia, N. Y.
Hammer, A. Wiese, Philadelphia, Pa.
Hanna, Hugh, Philadelphia, Pa.
Harman, George G., Huntingdon, Pa.
Harris, A. Paterson, N. C.
Hausman, W. A., Jr., Allentown, Pa.
Hawley, G. H., Barnstead, N. H.
Herrman, Max F., Philadelphia, Pa.
Hess, Carl, Würzburg, Germany.
Hogsett, C. V., Ft. Worth, Tex.
Houghton, Charles W., Philadelphia, Pa.
Hoyt, Daniel M., Philadelphia, Pa.
Hughes, Morgan D., Branchville, N.J.
Janeway, Henry H., New Brunswick, N. J.
Johnson, Frederick C., Wilkes-Barre, Pa.
Jones, Mary Lois, Pittsburg, Pa.
Jordan, James O., Boston, Mass.
Kipps, D. M., Front Royal, Va.
Klein, F. Y., Lebanon, Pa.
Knipe, William H., Limerick, Pa.
Kollock, Katherine, Philadelphia, Pa.
Kurtz, J. E., Reading, Pa.
Leale, Chas., Kingsland, Ark.
Leavitt, John F., Camden, N. J.
Lehnhoff, H. J., Lincoln, Neb.
Le Roy, Simeon, Grand Rapids, Mich.
Lewis, A. C., Fall River, Mass.
Lindsay, W. A., Amsterdam, O.
Long, Isaac S., Freehold, N. J.
Loughridge, W. E., Mansfield, O.
Lumbard, Joseph E., New York, N.Y.
Madden, Walter, Trenton, N. J.
Main, R. H., Barry, Ill.
Mander, A. J., Millville, N. J.
Mantz, F. A., Philadelphia, Pa.
Marshall, Randolph, Tuckahoe, N. J.
Martin, Joseph M., Lewes, Del.
Mattison, James A., Marion, Ind.
McConnell, Geo. G., Chicago, Ill.
McGowan, H., Harrisburg, Pa.
McGuigan, John L., Philadelphia, Pa.
McGinty, E. F., Pittston, Pa.
McKeage, Wm., Philadelphia, Pa.
McLoughlin, T. J., Jersey City, N.J.
McNulty, John J., New York, N. Y.
Melcher, W. P., Mt. Holly, N. J.
Michener, Edward W., Philadelphia, Pa.
Moir, A., Dunnville, Ont., Can.
Moore, Joseph A., Philadelphia, Pa.
Morris, Roger S., Baltimore, Md.
Murphy, F. A., Philadelphia, Pa.
Neely, Frank, Allegheny, Pa.
Newcomet, Wm. S., Philadelphia, Pa.
Norris, Frank O., Eagle Lake, Tex.
Northrup, W. P., New York, N. Y.
Oates, T. K., Martinsburg, W. Va.
Odom, James I. Van, Littleton, Okla.
Osterling, H. E., Wheeling, W. Va.
O'Neill, Owen, Willimantic, Conn.
Pancoast, Henry K., Philadelphia, Pa.
Parker, Frank C., Norristown, Pa.
Parry, Wm. C., Hainesport, N. J.
Patterson, C. W., Uhrichsville, O.
Payne, Albert B., Rivierdale, N. Y.
Pearce, W. M., Baltimore, Md.
Pechin, Edward C., Camden, N. J.
Phelan, Edward, Newark, N. J.
Phillips, C. B., Pitman Grove, N. J.
Plimpton, Lewis H., Norwood, Mass.
Plimpton, W. O., New York, N. Y.
Porteus, J. S., Taylor, Pa.
Potter, Will H., Niagara Falls, N.Y.
Price, De Forest, Philadelphia, Pa.
Randolph, Robert L., Baltimore, Md.
Reading, George Evans, Woodbury, N. J.
Redeker, F. W., Bloomsburg, Pa.
Reed, E. L., Atlantic City, N. J.
Remaly, Chas. E., Melrose, Wis.
Rexroad, C. W., Harrisville, W. Va.
Reynolds, Willard Lee, Brooklyn, N.Y.
Rhoads, Samuel, Philadelphia, Pa.
Robinson, W. J., Portia, Ark.
Rogers, N. N., Kingston, Pa.
Rose, W. A., Rochester, Pa.
Ruoff, William, Philadelphia, Pa.
Sanders, Wm. Shelby, Troy, Ala.
Sarratt, S. G., Union, S. C.
Saulsberry, Charles E., May's Landing, N. J.
Sawyer, Annie L., Atlanta, Ga.
Saxman, Nathaniel H., Philadelphia, Pa.
Scholl, B. Frank, Philadelphia, Pa.
Schutz, W. H., Kansas City, Mo.
Scott, Ernest, Columbus, O.
Sheldon, C. W., Keeneyville, Pa.
Shoemaker, John V., Philadelphia, Pa.
Short, Martha J., Rolla, Mo.
Shute, H. A., Philadelphia, Pa.
Simmons, Horace M., Baltimore, Md.
Smith, G. F., Falconer, N. Y.
Smith, Horace R., Altoona, Pa.
Southwick, F. A., Stevens Point, Wis.
Spigler, Otto R., Terre Haute, Ind.
Stanger, Samuel F., Trenton, N. J.
Steiner, Edwin, Newark, N. J.
Stevens, William, New York, N. Y.
Stewart, S. C., Clearfield, Pa.
Stickney, Y. H., Dickinson, N. D.
Sturgis, W. E., Stockensville, Tex.
Taylor, Robert W., New York, N. Y.
Thayer, W. S., Baltimore, Md.
Thomas, Vernon D., Pittsburg, Pa.
Thornton, J. E., Columbia, Mo.
Tomlinson, Peter W., Wilmington, Del.
Townsend, Mary E., Atlantic City, N. J.
Trevealis, A. L., Turtle Creek, Pa.
Tyler, R. D., Hadensville, Ky.
Van Derlyn, J. DuBois, New York, N. Y.
Van Gaasbeek, H. D., Sussex, N. J.
Van Ness, E. McE., Baltimore, Md.
Vinsant, Wm. J., Pecos, Tex.
Voorhees, Sherman, Elmira, N. Y.
Waite, H. E., New York, N. Y.
Walker, James B., Philadelphia, Pa.
Wallin, Mathilda K., New York, N.Y.
Walters, E. A., Ft. Worth, Tex.
Watson, Henry D., Cincinnatus, N. Y.
Welch, W. C., New Haven, Conn.
Weller, M., St. Johns, Mich.
West, W. M., Monett, Mo.
Wharton, H. R., Philadelphia, Pa.
Wheeler, Harry S., Whippany, N. J.
Whitney, Chas. A., New York, N. Y.
Wilbur, William L., Trenton, N. J.
Wiley, S. N., Norristown, Pa.
Will, Frederick J., Des Moines, Ia.
Williams, Geo. S., Muskegon, Mich.
Wilson, Norton L., Elizabeth, N. J.
Wilson, John H., Bethlehem, Pa.
Wilson, W. Reynolds, Philadelphia, Pa.
Wishard, E. E., Noblesville, Ind.
Woodward, R. M., Boston, Mass.
Wootter, A. J., Weston, W. Va.

Miscellaneous.

B. THOSE WHO MARKED MORE THAN ONE SECTION.

Abaly, W. C., Madison, Wis.
Adams, Chaney, Concord, N. H.
Alkire, H. L., Topeka, Kan.
Ard, F. C., Plainfield, N. J.
Ayres, S. C., Cincinnati, Ohio.
Bacon, H. Augustus, Philadelphia.
Bahn, G. W., Spring Forge, Pa.
Barlow, W. Jarvis, Los Angeles, Cal.
Beatty, H. M., Trenton, N. J.
Beaudette, W. A., Parish, N. Y.
Bird, Arthur Judson, Overton, Pa.
Bloodgood, Joseph C., Baltimore, Md.
Bracken, H. M., Minneapolis, Minn.
Brailesford, A. M., Mullins, S. C.
Braucht, H. L., Spring Mills, Pa.
Bridge, Norman, Los Angeles, Cal.
Briggs, Albert H., Buffalo, N. Y.
Briggs, H. H., Asheville, N. C.
Brittingham, James D., Philadelphia.
Brobst, Charles H., Peoria, Ill.
Brown, H. H., Chillicothe, Ohio.
Browning, William, Brooklyn, N. Y.
Bruner, John W., Bloomsburg, Pa.
Buchman, L. A., Pierce, Ohio.
Bullard, William E., Larchmont, N. Y.
Caldwell, C. P., Chicago.
Carson, James O., Bowling Green, Ky.
Chase, John, Denver, Colo.
Chisholm, F. M., Baltimore, Md.
Cleemann, Richard A., Philadelphia.
Cleland, James, Jr., Detroit, Mich.
Coe, Richard, Newark, N. J.
Cohen, Leo, Baltimore, Md.
Congdon, C. E., Buffalo, N. Y.
Conn, J. Emmett, Ida Grove, Iowa.
Corl, H. E., Middle Branch, Ohio.
Crane, S. Melville, Marion, Ohio.
Crane, S. Ellis, syracuse, N. Y.
Currie, Thos. R., Philadelphia.
Curtis, F. C., Albany, N. Y.
Cushing, Harvey, Baltimore, Md.
Dailey, Lawrence J., Gloversville, N. Y.
Daly, J. Nellis, Orangeville, Ill.
Davis, William H., Denver, Colo.
Dayton, W. L., Lincoln, Neb.
Deal, John Colton, Philadelphia.
Dennis, Daniel N., Erie, Pa.
Derdiger, Aria Louis, Chicago.
De Witt, J. P., Canton, Ohio.
Donaldson, H. J., Williamsport, Pa.
Duncan, Harry A., Philadelphia.
Duncan, J. A., Bedford, Ind.
Durham, James H., Warren, Pa.
Eagleton, Wells P., Newark, N. J.
Edgar, James Clifton, New York.
Emerson, Linn, Orange, N. J.
Erdman, B., Indianapolis, Ind.
Fair, John F., Cambridge, Mass.
Fleming, George A., Baltimore, Md.
Forline, Henry H., Fredericksburg, Va.
Formad, Marie K., Philadelphia.
Fox, F. E., Fulton, N. Y.
French, Charles L., Clinton, Mass.
Friedenwald, Harry, Baltimore, Md.
Garrabrant, C., Atlantic, N. J.
Garrison, Daniel, Penn Grove, N. J.
Gates, Aden Clarence, Kingston, N. Y.
Geier, Otto P., Cincinnati, Ohio.
Gile, John M., Hanover, N. H.
Glenn, Eugene R., Asheville, N. C.
Goldwater, A. L., New York.
Greene, W., Dayton, Ohio.
Griffith, D. M., Owensboro, Ky.
Gundry, Richard F., Catonsville, Md.
Harris, A. E., Little Rock, Ark.
Harlan, Herbert, Baltimore, Md.
Harrower, David, Jr., Worcester, Mass.
Hartmann, Jacob A., St. Louis, Mo.
Hawkes, E. M. Z., Newark, N. J.
Hayes, Leo A., Georgetown, Pa.
Hays, S. B., Newcomerstown, Ohio.
Hegner, Casper F., Cincinnati, Ohio.
Hemmeter, John C., Baltimore, Md.
Hoffman, D. E., Logansport, Ind.
Horrell, C. B., Gatesburg, Ill.
Houlihan, T. J., Ida Grove, Iowa.
Hulett, Joseph R., Middletown, N. Y.
Hunt, George F., Holyoke, Mass.
Jennett, H. N., Kansas City, Mo.
Jervey, J. W., Greenville, S. C.
Johnson, Joseph Tabor, Washington, D. C.
Johnson, Walter R., Paterson, N. J.
Jonah, W. E., Atlantic City, N. J.
Kerr, T. J., Cleveland, Ohio.
King, James R., Watkins, N. Y.
Kinyoun, J. J., Philadelphia, Pa.
Kipp, Charles J., Newark, N. J.
Knight, Robert, Seneca Falls, N. Y.
Kosmak, George W., New York.
Krom, Astley G., Erie, Pa.
Kyle, D. Braden, Philadelphia.
Latta, Samuel W., Philadelphia.
Lecompte, William C., Bristol, Pa.
Lindley, D. C., New Castle, Pa.
Link, Joseph A., Springfield, Ohio.
Linthicum, G. Milton, Baltimore, Md.
Linvill, David Swan, Columbia City, Ind.
Locke, Eva M., Nashua, N. H.
Longeway, A. F., Great Falls, Mont.
Loughlin, T. B., Ocean, N. J.
McPherson, J. D., Akron, Ohio.
Martin, Albert R., Chicago.
Marvel, Emery, Atlantic City, N. J.
Massey, J. E., Jr., Rock Hill, S. C.
McClary, Charles E., Syracuse, N. Y.
McComb, Samuel Forbes, Tarentum, Pa.
McKeeby, W. Coe, Syracuse, N. Y.
Miller, Aaron B., Syracuse, N. Y.
Miller, J. R., Rock Hill, S. C.
Miller, Walter J., Johnson City, Tenn.
Miller, Walter M., Philadelphia.
Miller, William Preston, Hagerstown, Md.
Miner, Charles H., Wilkesbarre, Pa.
Mitchell, John D., Hornell, N. Y.
Modell, Daniel A., Philadelphia, Pa.
Moraweck, Ernest, Louisville, Ky.
Morrison, A. A., Savannah, Ga.
Morrow, Prince A., New York, N. Y.
Moulton, Willis B., Portland, Me.
Munson, S. E., Springfield, Ill.
Musser, Francis R., Oakland, Cal.
Nead, Daniel W., Philadelphia, Pa.
Ochsner, A. J., Chicago, Ill.
Ogden, Chester R., Clarksburg, W.Va.
Olendorf, Carolyn L., Cobleskill, N.Y.
Oliver, J. A., Steubenville, O.
O'Malley, Joseph D., Philadelphia,Pa.
Otis, Elmer P., Lake George, N. Y.
Otis, Frank J., Chicago, Ill.
Ott, Charles H., Sayre, Pa.
Ott, Lambert, Philadelphia, Pa.
Pack, John E., Georgetown, Ky.
Peck, C. W., Brandon, Vt.
Pedersen, Victor C., New York, N.Y.
Peter, Luther C., Philadelphia, Pa.
Phillips, G. J., Chicago, Ill.
Potter, Ellen C., Philadelphia, Pa.
Price, J. J., Olyphant, Pa.
Pumphrey, R. J., Massillon, O.
Purnell, Caroline M., Philadelphia, Pa.
Quigley, D. T., North Platte, Neb.
Ramsay, Wm. E., Perth Amboy, N.J.
Ransom, T. H., Bloomingdale, Mich.
Rhu, Auguste, Marion, O.
Richardson, Charles Harper, Pittsfield, Mass.
Roberts, W. H., Pasadena, Cal.
Robertson, Wm. Egbert, Philadelphia, Pa.
Roe, W. J., Philadelphia, Pa.
Rowe, George H. M., Boston, Mass.
Roy, Dunbar, Atlanta, Ga.
Samson, W. Stanley, Lancaster, O.
Sanders, S. F., Holdrege, Neb.
Saxe, G. A. De Santos, New York, N. Y.
Schmidt, L. E., Chicago, Ill.
Schuman, O. V., Columbia City, Ind.
Seabrook, Alice M., Philadelphia, Pa.
Seaman, Louis L., New York, N. Y.
Sears, F. W., Syracuse, N. Y.
Seegar, J. King B., Baltimore, Md.
Shepard, Charles H., Brooklyn, N.Y.
Shepherd, I. M. O., Trenton, N. J.
Siggins, J. B., Gil City, Pa.
Simpson, John Crayke, Washington, D. C.
Singer, John J., Greensburg, Pa.
Skinner, J. O., Washington, D. C.
Smith, Homer E., Worcester, N. Y.
Stauffer, Fred, Salt Lake City, Utah.
Stauffer, Nathan P., Philadelphia,Pa.
Stealy, J. H., Freeport, Ill.
Steeves, Alice M., Boston, Mass.
Stevenson, F. C., Montgomery, Ala.
Stewart, James M., Paterson, N. J.
Stowell, Wm. Leland, New York,N.Y.
Strain, Earle, Great Falls, Mont.
Strittmatter, I. P., Philadelphia, Pa.
Stueber, F. G., Lima, O.
Sutliff, Van D. A., Philadelphia, Pa.
Swan, Tyrus E., Easton, Pa.
Swaney, H. N., Eagle, Mich.
Swing, E. V., Coatesville, Pa.
Tait, Thomas W., Philadelphia, Pa.
Talley, James E., Philadelphia, Pa.
Taylor, Julius Heyward, Columbia, S. C.
Thienhaus, C. O., Milwaukee, Wis.
Thomson, Chas. E., Scranton, Pa.
Thompson, Charles O., Boston, Mass.
Timmons, Jos. M., West Alexander, Pa.
Totman, David M., Syracuse, N. Y.
Town, F. C., Narberth, Pa.
Tracy, George T., Beverly, N. J.
Tracy, S. E., Philadelphia, Pa.
Trexler, Henrietta M. Dougherty-, Philadelphia, Pa.
Trow, Charles, Toronto, Canada.
Turnbull, Thomas, Jr., Allegheny, Pa.
Tweedle, James B., Weatherly, Pa.
Valentine, Ferd. C., New York, N. Y.
Vance, Ap. Morgan, Louisville, Ky.
Wagenseller, B. F., Selinsgrove, Pa.
Walton, L. S., Jenkintown, Pa.
Ward, Nathan G., Philadelphia, Pa.
Wasley, H. M., Shenandoah, Pa.
Weber, Geo. T., Olney, Ill.
Weber, Harry P., Philadelphia, Pa.
Weeber, Gustavus, Washington, D. C.
Weems, M. A., Columbia, Tex.
Wenner, E. Bruce, Philadelphia, Pa.
Wesslinger, John A., Ann Arbor, Mich.
Whitacre, Horace J., Cincinnati, O.
White, Joseph A., Richmond, Va.
Wiley, E. M., Lexington, Ky.
Wilkinson, Oscar, Washington, D. C.
Williams, Chas. E., Houlton, Me.
Wintersteen, J. Boone, Moorestown, N. J.
Wood, P. R., Marshalltown, Ia.
Woodruff, Richard A., Pittsfield,Mass.
Woodruff, W. G., Portland, Ore.
Young, S. A., Lennox, S. D.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

Hay Fever.

Hay fever, hay asthma or hyperesthetic rhinitis is dependent on three classes of factors which may be active to varying degrees in individual cases. The first is an underlying general nervous susceptibility which may depend on inherited neurasthenic tendencies or on acquired conditions of a toxic nature. Of the latter, the most prominent are a gouty or rheumatic tendency referred by some to the action of an excess of uric acid. In many cases the underlying susceptibility appears to be due to intestinal putrefaction with absorption of the toxins so produced.

The second class of factors includes abnormal conditions of the nasal organs which favor congestion and undue sensitiveness of the mucous membrane.

The third class consists of dust, pollen and other irritants which act as exciting causes. About two-thirds of the cases are supposed to be due to pollen.

The treatment must consist in the removal of constitutional causes, the proper local treatment of the nose, avoidance of the exciting causes, by change of climate if necessary, with the aid of antitoxin in cases in which it is appropriate.

As general treatment, antacids, especially potassium or sodium citrate, and salicylates are to be used to lessen acidosis and to remove any gouty tendency. S. Solis-Cohen, in THE JOURNAL, recommends the following:

R.	Sodii salicylatis	3iii 12
	Sodii benzoatis	3vi 24
	Essentiæ pepsini	f3ii 60
	Tincturæ nucis vomicæ	f3i 4
	Aquæ menthæ piperitæ	f3iv 120

M. Sig.: Two teaspoonfuls in (or with) one-half tumblerful of water, every fourth hour, for four or five doses daily.

As alkaline diuretics liquor potassii or sodium citrate may be given, or mild alkaline carbonated waters which Cohen recommends as always helpful. If preferred, tablets of lithium carbonate or lithium citrate may be used to make an artificial mineral water. The National Formulary provides for powders of effervescing artificial Vichy salts, which may be used instead of the natural water.

R. Pulv. salis Vichyani fact. efferv. (N. F.) 3iv 120

Sig.: Take a teaspoonful in a glass of water four times a day. Or, if the action of lithium is desired, the Pulvis salis Vichyani factitii effervescens cum lithio (N. F.) may be prescribed.

For a tendency to intestinal putrefaction the remedies suggested in THE JOURNAL, June 22, page 2158, may be employed.

The local treatment of the nose is largely operative and is best carried out by a specialist. Internal treatment designed to diminish the sensitiveness of the nose may be resorted to. Cohen recommends:

R.	Hyoscinæ hydrobromatis gr. 1/100	0006
	Camphoræ monobromatæ gr. ii	12
	Sacchari lactis, q. s.	

Misce et tritura bene. Divide in tabulas vel capsulas No. xx.

Sig.: Give one tablet or capsule at intervals of from ten to ninety minutes until the sneezing and running of the nose are controlled, after which one tablet may be taken every second,

third or fourth hour, as may be necessary to maintain the effect.

The following may be given in the same way:

℞.	Atropinæ sulphatis.....gr. 1/50	.001
	Camphoræ monobromatæ.....gr. v	.30
	Balsami peruviani, q. s.	

M. fac. capsules No. xx.

H. H. Curtis, in a paper read before the Section on Laryngology and Otology of the American Medical Association at the recent session at Atlantic City, recommends the following tablet:

℞.	Strychninæ arsenatis.....gr. 5/6	.054
	Atropinæ sulphatis.....gr. 1/3	.02
	Camphoræ .....gr. xxv	1.62
	Ipecacuanhæ .....gr. v	.32

Misce et fiat massa in pilulas No. 100 dividenda. Sig.: One pill from three to six times a day.

This author has found this especially useful in cases in which the hyperesthetic rhinitis depends on an adynamic state of the nervous system.

Practitioners who believe in the uric acid origin of the disease have recommended mineral acids and have reported remarkable results. It is possible that these agents do good by preventing intestinal putrefaction rather than by banishing uric acid from the blood. At any rate so simple a remedy deserves a trial in such an obstinate disease. Gleason, "Diseases of Nose," recommends:

℞.	Acidi nitromuriatici.....f℥i	30

Sig.: From 5 to 10 drops in a tumblerful of water after meals.

The nitromuriatic acid should be freshly prepared. Dilute hydrobromic acid may also be given combining the sedative effect of the bromid with the action of the acid ions.

Probably the most efficient local application to the nose is some preparation of suprarenal gland or the suprarenal alkaloid. This may be given internally, or applied locally to the congested mucous membrane. Theoretically the internal use of suprarenal alkaloid is contraindicated, as it is not desirable to raise the general blood pressure, and it is probable that in the cases in which its internal administration has been successful it has been through a local effect occurring perhaps in a reflex way. Cohen insists that in order to get good effects from the internal administration of the drug it is necessary that it be absorbed from the mucous membrane of the mouth, and that it is of no efficacy if swallowed. He gives it in a triturate containing a small quantity (from 1/50 to 1/10 grain, gm. 0.001 to gm. 0.006) of the alkaloid, or from 1 to 2 grains (gm. 0.06 to gm. 0.12) of the dried gland. The alkaloid or the dried gland may be applied locally in solution, powder or ointment. Richards advises the following:

	Solution of suprarenal alkaloid (1-1,000) .℥i	4
	Normal salt solution.....℥ii	60

Sig.: Use as a spray whenever the nose is filling up.

Cohen recommends:

	Parts.
Suprarenal alkaloid	1
Bismuth subcarbonate	300
Zinc oxid	300
Zinc stearate	200

M. Triturate well. This may be snuffed up into the nasal passages, or may be insufflated by means of a powder blower.

As an ointment Gleason uses the following:

	Suprarenal alkaloid	.001
	Adipis lanæ hydrosi	5
	Petrolati	5

M. Sig.: A piece of the size of a pea should be inserted into each side of the nose every two hours by a brush or with the tip of the little finger.

The head is thrown back until the ointment melts and distributes itself over the nasal mucous membrane.

It is convenient to dispense these ointments in a collapsible tube so that the patient can carry it in his pocket.

The antitoxic serum devised by Dunbar is still on trial. It is made by injecting horses with pollen toxin until a serum is obtained which will prevent the reaction produced in a susceptible individual by the instillation of pollen toxin into the eye. The antitoxin is specific against a certain pollen and hence a special serum must be made for the pollen most prevalent in a certain region. The antitoxin made for American patients is intended to counteract the effects of the pollen of the ragweed and golden rod, which are the most common excitants of hay fever in this country. The result of large experience with this treatment seems to be that it gives remarkable relief in some cases, but fails in others, and sometimes unaccountably. H. H. Curtis concludes: "The consensus of opinion to-day is against the claims made for pollantin, though observers who have been instructed personally by Professor Dunbar endorse unqualifiedly the great benefit to be derived from the treatment."

The obstinate character of some cases justify a resort to this treatment if proper constitutional and local treatment has failed, but the physician and patient must be prepared to experience failure in a certain proportion of cases.

E. Fletcher Ingals, Chicago, advises the use of the following spray in this condition:

℞.	Resorcinol .....gr. v	.32
	Adrenalin chlor.....gr. ss	.03
	Acidi borici.....gr. xv	1
	Aquæ camphoræ (ferr.).....f℥ss	15
	Glycerini .....f℥ss	2
	Aquæ dest. q. s. ad.....f℥ii	60

M. Sig.: Use as a spray in nose four or five times daily.

Medicolegal

National Formulary Appendix.

Food Inspection Decision No. 59 by James Wilson, Secretary of Agriculture, states that the National Formulary is one of the standards recognized under the law. The question has been asked a number of times whether the appendix of this authority would be construed as part and parcel of the book itself. On page iv of the preface it is distinctly stated that the formulæ collected in the appendix of the National Formulary are "no longer designated as 'N. F.' preparations." This shows that these formulæ are not integral parts of the book under the law, which covers only those products of the National Formulary recognized as such by this authority. By this it is understood that if a drug product is sold under a name contained in the appendix of the National Formulary, it will not be necessary for such product either to conform to the standard indicated by the formula or to declare on the label its own standard strength, quality and purity if a different formula is employed in its manufacture. Such articles are, however, subject to the law in every other respect, as is the case of other medicinal products not recognized by the United States Pharmacopeia or National Formulary.

No Time Bar Against Revocation of License After Conviction of Offense Involving Moral Turpitude.

The Supreme Court of Washington says, in the case of State Medical Examining Board vs. Stewart, that a complaint was filed with the state medical board on June 16, 1906, seeking to revoke the license of the defendant to practice medicine within the state. The complaint alleged that he was guilty of unprofessional and dishonorable conduct, and particularly stated facts showing his conviction on Sept. 30, 1903, for an offense involving moral turpitude. The state statute provides that a license to practice medicine may be revoked by the state examining board on complaint charging unprofessional or dishonorable conduct, and it is provided by section 6285, Pierce's Code, that a conviction of any offense involving moral turpitude shall constitute unprofessional or dishonorable conduct. Section 6287 provides for an appeal from the board of examiners to the Superior Court of the county in which was held the last general meeting of such board; and also provides that such appeal shall stand for trial anew in all respects as ordinary civil actions, and like proceedings shall be had thereon. No time is limited within which such proceedings shall be commenced. It was argued here that, because no time is fixed, such actions must be commenced within two years, under the provision of the statute of limitations. But the court does not think that provision applicable to this case.

The court says that the character of the person at the time the charge of unprofessional conduct is made controls his right to the license. A conviction of any offense involving moral turpitude is made conclusive evidence of unprofessional conduct. It is not contemplated by the statute that the examining board shall try the accused and find him guilty of an offense involving moral turpitude when there has already been a trial and conviction. The statute, therefore, constitutes a rule of evidence in such cases, to which the statute of limitations does not apply.

Reference is made to the case of Hawker vs. New York, 170 U. S. 189, and cases there cited. It is suggested to see also In re Lowenthal, 78 Cal. 427, and ex-parte Tyler, 107 Cal. 78, to the effect that the statute of limitations does not apply in cases of this character.

Upholds Removal of Board of Health for Appointing Member Quarantine Physician.

The Supreme Judicial Court of Massachusetts says that in the case of Gaw and others vs. Ashley and others a writ of mandamus was petitioned for to compel the defendant Ashley, as mayor of the city of New Bedford, to restore the petitioners to office as members of the board of health of that city, and to restrain the other two defendants from interfering with the petitioners in the performance of their duties as members of such board. The petitioners, after due hearing, were removed from office by the mayor, for a cause which he stated as misuse of authority in the matter of an appointment of a subordinate, and conduct in regard thereto prejudicial to the welfare of the public service, and inconsistent with and contrary to public policy, in that, as members of said board, they voted for and caused to be appointed as quarantine physician a member of said board, in which position, when so appointed, the said physician, under the city ordinances, was subject to the order and direction of said board of health, and eligible to receive compensation for his services, and in addition might be permitted to charge to the sick under his care, for medicine and medical attendance, such sums as the board of health might approve, said board of health at the time of said appointment and thereafterwards being composed of said physician and two other persons.

The court does not think that, under the ordinance, the board of health lawfully and properly could elect one of themselves to this office. It says that the ordinance contemplates the existence of a relation between the physician and the board which requires that he shall not be a member of it. He is to make frequent reports to the board, and from time to time is to make recommendations. His charges to the sick are to be only such as the board approve. His personal interest in these charges is inconsistent with the proper performance of his duty, as a member of the board of health, to fix their amount, in the interest of the public and for the protection of his patients.

The provision of section 10 of chapter 75 of the Revised Laws of Massachusetts, that the clerk of the board shall not be a member of it, the court says, does not imply that the physician and all other agents and assistants may be chosen from the members. In such a board there is no such apparent inconsistency between the duties of a recording officer and an ordinary member as necessarily to preclude the choice of a clerk from the members of the board. Were it not for this provision, such a choice might be made as it may be made from the board of overseers of the poor. But the duties and relations of the quarantine physician in the present case are inconsistent with membership in the board.

It follows that the court can not set aside the action of the mayor. It can not be said as matter of law that his action was without sufficient cause. It is only when there is an arbitrary exercise of power, and the cause alleged for the removal is frivolous or unreasonable and in law insufficient, that the court can revise such official action.

The fact that a similar choice of a quarantine physician had sometimes been made in former years does not enable the court to say that the mayor's action was unauthorized. He well might have considered it in judging whether this recent act of the petitioners called for their removal. The cause which he gave being legally sufficient, the court can not say that there was error of law in his finding.

Proof Rendering X-Ray Photographs Admissible—Improper Cross-Examination Extending to Other Cases.

The Supreme Court of Illinois says that in Chicago City Railway Company vs. Smith, an action brought by the latter party to recover for personal injuries, it was contended that error had been committed in admitting in evidence certain *x*-ray photographs taken by a physician for the purpose of showing the character of the plaintiff's injuries. Preliminary to the introduction of these photographs the physician testified that he was a postgraduate physician and surgeon, and had had twelve years' experience in the practice of his profession in Chicago, and was experienced in the matter of making *x*-ray photographs, and that he was competent to make correct *x*-ray views, and that he made the original negatives and the prints therefrom, and that the same were correct representation of what they purported to be. This preliminary proof was sufficient to authorize the reception of the photographs in evidence. What they proved or tended to prove, or whether they were impeached by the expert testimony introduced by the defendants, were questions for the jury. The evidence of the physician made a prima facie showing sufficient to justify the court in admitting them in evidence.

On cross-examination of another physician, a medical expert witness for the plaintiff, counsel for the defendants, the court says, asked the following question: "Isn't it the principal part of your professional industry to be in consultation with attorneys, to hunt up these claims, or, whether you hunt them up or not, secure them, and in consultation with them have an arrangement with them for contingent fees?" To this question the trial court sustained an objection, and this ruling was assigned as error. The Supreme Court considers that the objection to this question was properly sustained. It says that, conceding the defendants' right of cross-examination to discover the motives, feelings and prejudices of a witness, still this court is not inclined to hold that there was any error committed in refusing to allow the cross-examination to be extended to other cases having no connection with the case then being tried.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below:

Medical Record, New York.

June 22.

1 *Sterilized Horse Serum in Surgery. R. Petit, Paris.
2 *Pyrexia in Tuberculosis. H. P. Loomis, New York.
3 *Problem of Infant Feeding. O. Huebner, Berlin.
4 Some Aspects of Sterility and Its Treatment. A. J. Rongisky, New York.
5 *What are Acid Fasts? S. J. Maher, New Haven, Conn.
6 *Treatment of Disease and So-called Authorities. G. F. Butler, Chicago.
7 Abnormal Response to Irritation of Motor Area of Brain. A. Gordon, Philadelphia.
8 *Case of Multilocular Glandular Cystoma Complicating Pregnancy. B. S. Talmey, New York.

1. **Sterilized Horse Serum in Surgery.**—Petit, in experiments made by injection of isotonic solutions into the peritoneal cavity in animals, found that there was an afflux of polynuclear white blood cells to the spot of injection, and that the resistance of the animal to infection was increased. He applied this fact by using sterilized horse serum as an injection, since this is the substance that produces polynucleosis most easily and usefully. After its use it was found possible to inject lethal doses of cultures of *Bacterium coli communis* and *Staphylococcus pyogenes* into the serous cavities with impunity. This afflux takes place not only into the peritoneum, but also into the serous cavities, mucous membranes, and in wounds of all regions. More than a hundred cases in human beings have now been treated by injection of sterilized horse serum. In abdominal surgery of a non-septic character it has been used as a prophylactic by pouring the serum into the

cavity that has been opened, and by drainage by gauze saturated with the serum. In septic cases it has been used by packing the cavity with gauze saturated with the serum and by pouring the serum into the cavity through the drain. The character of the pus is changed at once; instead of a serous fluid, it becomes thick and creamy and contains many polynuclears. Suppuration diminished rapidly and granulation began. In gynecology it was used in puerperal infections, after curetting, by packing the uterus with gauze saturated with serum, and placing dried serum on a small tampon introduced into the uterus. In phlegmonous infections, and in burns it has been used, and the results have been excellent, healing being rapid. Healing and cicatrization have been obtained, at once rapid and excellent; and cure has been obtained in desperate diseases.

2. **Pyrexia in Tuberculosis.**—Loomis considers the thermometer an important aid in diagnosis in obscure tuberculous cases, and advocates teaching the patient to take his own temperature every four hours and to record it for the benefit of the physician. The treatment of pyrexia consists of rest in bed, both mental and physical, in the open air; liquid food and alcohol in an agreeable form; tepid sponging with equal parts of alcohol and water, and when these fail, antipyretic drugs.

3. **Infant Feeding.**—Huebner considers the nursing of the child by the mother of prime importance, especially during the first month of life. Even if the breasts do not yield enough milk at first, the supply may be increased by suckling and by improved nutrition for the mother. Additional food may be given the child once a day. In premature births, he advises hiring a wet nurse and letting her strong child nurse the other mother while her milk is drawn for the premature child. Or the milk may be drawn with a breast pump and the child fed with it.

5. **Acid-Fast Bacilli.**—Maher describes the organisms that in many respects resemble the tubercle bacillus, in form as well as in resistance to acids, but that develop much more rapidly. They are harmless and are differentiated from the tubercle bacillus by not affecting guinea-pigs, when injected. The pathogenic acid fasts found in man are the diphtheria bacillus and leprosy bacillus. The differentiation of these organisms from the tubercle bacillus must be made by considering all the circumstances connected with their life, form, appearance of cultures, temperature at which they grow, agglutination tests and lesions produced on guinea-pigs, since no one of these things will help us draw a hard and fast line separating them from the tubercle bacillus.

6. **Treatment of Diseases.**—Butler believes that we have come to attach too great importance to diagnosis and too little to the prevention and cure of disease.

8. **Multilocular Glandular Cystoma Complicating Pregnancy.**—Talmey describes such a case complicating pregnancy, the cyst being the size of the child's head. The tumor had been raised out of the pelvis with the growth of the uterus and had in no way interfered with the delivery of the child in the normal way. This case, he says, serves to show that it is not always necessary to operate on a patient having pelvic tumor during pregnancy.

New York Medical Journal.

June 22.

9 Sanitation in Panama. J. E. Stubbert, New York.
10 President's Address, American Climatological Association. T. Darlington, New York.
11 Hygiene in Relation to Heredity of Disease. P. A. Morrow, New York.
12 *Surgical Aspects of Digestive Disorders. J. R. Arneill, Denver, Colo.
13 Experimental Immunity to Colon and Typhoid Bacilli. V. C. Vaughan and M. Wheeler, Ann Arbor, Mich.
14 *Case of Intermittent Claudication. J. E. Talley, Philadelphia.
15 *Menstruation. J. Oliver, London, England.
16 Anemic Infarction of Adrenal with Thrombosis of Veins. U. J. Wile, New York.
17 Pharmacopeial Preparations to be Kept on Hand by General Practitioners. G. A. Graham and others, Kansas City, Mo.

12. **Surgical Digestive Disorders.**—Arneill urges on all physicians that it is their duty insistently and persistently to recommend and to advise exploratory operations, when a conscientious, intelligent and scientific examination of a serious case leaves doubt as to the diagnosis and treatment. This recommendation applies most often to dyspeptic cases in which there is a suspicion of cancer; also, to obscure conditions in the right hypochondrium, in which gastric ulcer and gall-bladder disease are suspected but not proved.

14. **Intermittent Claudication.**—Some features of the case reported by Talley are suggestive of erythromelalgia, and, possibly, of Raynaud's disease. The patient had always been a free user of tobacco and alcohol; had worked in a silver mine two years, when he contracted lead poisoning; later he suffered from arsenical poisoning, and while working in a mercury mine he became salivated. His feet had also been badly frozen. Then he began brick making, working during a part of the time in water up to his waist. There was no history of venereal disease. His arteries were hard, and he suffered from angina pectoris.

15. **Concerning Menstruation.**—Observations made on cases of inversion of the uterus lead Oliver to conclude that his theory of menstruation being a secretory rather than an excretory process, is correct.

Boston Medical and Surgical Journal.

June 20.

18 Mountain Climbing for Professional Men. C. K. Austin, Paris, France.
19 *Flushing the Intestinal Canal Through Multiple Enterotomy Openings. G. H. Monks, Boston.
20 Multiple Papillomata of Bladder. L. Davis, Boston.
21 Myasthenia Gravis. W. E. Paul, Boston.
22 Cancer of Larynx. D. C. Greene, Jr., Boston.
23 Foreign Body in Bronchus. A. Coolidge, Jr., Boston.
24 Results of Primary Operations for Breast Cancer. R. B. Greenough, C. C. Simmons and J. D. Barney, Boston.

19. **Flushing Intestinal Canal.**—As a result of experiments Monks came to the conclusion that flushing the intestinal canal of a patient suffering with acute intestinal toxemia, whether or not peritonitis is also present, is a perfectly practicable procedure, and that, in certain cases, after the simpler methods of treatment have been used without result, it is thoroughly justifiable. The patient would also derive much benefit from this flushing for the following reasons: 1. It would remove an active course of septic infection. 2. It would place within the intestinal canal a large quantity of salt solution where it could be absorbed readily into the circulatory system. 3. The warm solution would reinforce the bodily heat, the whole intestinal canal being thus converted into a long, tortuous hot-water heater within the abdomen. Monks reports one case in which this procedure was carried out successfully. A little girl, 8 years old, was evidently dying of sepsis, originating within the intestinal tract. An incision was made into the intestine near the duodenum. Another was made two or three feet lower down. A glass tube was inserted in the upper opening, and the intestinal canal was thoroughly flushed with hot salt solution. The upper wound was then sewed up, and from the lower wound the rest of the intestinal canal was flushed. All openings were then closed, except that room was left in the lower angle of the abdominal wound for a small cigarette drain. The greatest care was taken during the flushing to avoid contamination of the peritoneum by the intestinal contents. The patient made an excellent recovery and was discharged on the thirty-sixth day.

Lancet-Clinic, Cincinnati.

June 15.

25 Specific Treatment of Pulmonary Tuberculosis. E. G. Epler Fort Smith, Ark.
26 Fused Horse-shoe Kidney. B. Robinson, Chicago.
27 Calcium Chlorid in Typhoid with Intestinal Hemorrhage. M. A. Brown, Cincinnati.

June 22.

28 Chronic Endometritis, Specific and Non-specific. E. Harlan, Cincinnati.
29 Opportunities for Clinical Study in Royal London Ophthalmic Hospital (Moorfields) and "Fuchs" Clinic, Vienna. F. B. Crosa, Cincinnati.
30 Should We Dispense Our Own Medicines. E. R. Beard, Liberty, Ind.
31 The Man Who Can. P. S. Conner, Cincinnati.
32 The Country Doctor. E. E. Collins, Williamsport, Tenn.

St. Louis Medical Review.

June 15.

33 Hematuria. E. P. Porterfield, St. Louis.
34 Autopsy in Which Both Cancer and Tuberculosis Were Found. O. H. Brown, St. Louis.

Journal of Infectious Diseases, Chicago.

June 15.

35 *Human Pneumococcal Opsonin and Anti-opsonic Substance in Virulent Pneumococci. E. C. Rosenow, Chicago.
36. *Isoagglutination of Human Corpuscles. L. Hektoen, Chicago.
37 *Streptococco-opsonic Index in Scarlatina. R. Tunnicliff, Chicago.
38 *Opsonic Index and Vaccine Therapy of Pseudodiphtheritic Otitis. A. Hamilton, Chicago.
39 *Pseudodiphtheria Bacilli as Cause of Suppurative Otitis, Especially Postscarlatinal. A. Hamilton, Chicago.
40 *Phagocytosis and Opsonins in Lower Animals. G. F. Ruediger and D. J. Davis, Chicago.
41 *Presence of Diphtheria Bacilli in Apparently Normal Throats. A. I. v. Sholly, New York City.
42 *Tuberculosis of Placenta. A. S. Warthin, Ann Arbor, Mich.
43 *Leukemia of the Common Fowl. A. S. Warthin, Ann Arbor, Mich.
44 Method for Simultaneous Passage of Many Paraffin Sections Through the More Difficult Stains. F. P. Rous, Ann Arbor, Mich.
45 Unsuccessful Attempt to Produce Atypical Epithelial Growth by Injection of Schariach R. in Olive Oil. C. Snow, Ann Arbor.
46 Determination of Bacillus Coli in Water. F. B. Longley and W. U. C. Baton, Washington, D. C.
47 Physiologic Nature of "Glandular Hyperplasias" of Dog's Thyroid. D. Marine, Cleveland.
48 Staining of Encapsulated Bacteria for Pneumococci and Streptococci. L. Buerger, New York.
49 Presence of Hemolytic Substances in Edible Fungi. W. W. Ford, Baltimore.
50 *Etiology of Dengue Fever. P. M. Ashburn and C. F. Craig, Manila, P. I.
51 *Effects of Egg-white and Its Split Products on Animals. V. C. Vaughan and S. M. Wheeler, Ann Arbor, Mich.
52 Natural Immunity and Susceptibility to Diphtheria Toxin. H. M. Goodman, Chicago.

35. **Pneumococcal Opsonins and Antiopsonins.**—Rosenow shows that human serum retains its opsonic power with regard to various bacteria after filtration through porcelain, and the results of his absorption experiments indicate that normal human serum contains several opsonins with specific affinities for pneumococci, streptococci, staphylococci and tubercle bacilli. While avirulent pneumococci absorb opsonin and thereby are rendered susceptible to phagocytosis, pneumococci that are virulent for rabbits do not absorb opsonin and are insusceptible to phagocytosis, and these properties may be diminished or increased at will by passage through rabbits or cultivation on artificial media as the case may be. Extraction or autolysis of virulent pneumococci in salt solution brings into solution a substance or substances which inhibit the action of pneumococco-opsonin, and virulent pneumococci take up this substance and become resistant to phagocytosis at the same time as they show some degree of animal virulence, while after extraction virulent pneumococci acquire the power to absorb pneumococco-opsonin. It thus seems possible to extract from virulent pneumococci a substance on which virulence appears to depend and for this substance the name "virulin" is suggested.

36.—See abstract in THE JOURNAL, May 25, 1907, p. 1739.

37. **Streptococco-Opsonic Index in Scarlatina.**—Tunnicliff concludes that in the majority of cases of scarlet fever the streptococco-opsonic index in the beginning of the disease is below normal. As the acute symptoms subside the index rises above normal, to which it soon returns, sometimes quite abruptly, and in infected cases it commonly remains at or near normal during convalescence. Definite local streptococcal complications are inaugurated by a depression in the streptococco-opsonic index, which rises again as improvement takes place. The conditions in the severe so-called septic cases require further study. The result of this investigation indicates that practically from the first the scarlet fever patient is the subject of streptococcus infection.

38. **Pseudodiphtheritic Otitis.**—Hamilton finds that in cases of otitis media in which pseudodiphtheria bacilli predominate in the pus from the ear, there is usually a low opsonic index for these bacilli. When repeated examinations are made the index may be found to cover a wide range; and the changes in the index often correspond to changes in the clinical symptoms, the amount of discharge increasing as the index falls, and diminishing as it rises. Injections of dead cultures of the strain isolated from the patient results in an increase of the opsonin for that strain. No ill-effects appear to follow injections of moderate quantities,and in several cases apparent improvement and shortening of the course resulted, but further experience, especially in chronic cases, is necessary before a definite impression can be formed as to the value of the treatment. Inasmuch as opsonin in the blood of the patient is specific for the variety of pseudodiphtheria bacilli to which the patient's strain belongs, and because of the fluctuations in the opsonic index in the course of the otitis and in response to injections of specific vaccine, strong proof is presented that pseudodiphtheria bacilli play an etiologic rôle in certain forms of otitis.

39. **Id.**—In suppurative processes, and especially in the pus of the postscarlatinal otitis media, two varieties of pseudodiphtheria bacilli are frequently found. The first group ferments saccharose but not maltose, is seldom virulent for guinea-pigs and is agglutinated and killed by serum of rabbits immunized against one member of the group. Group 2 ferments maltose but not saccharose, is more often virulent for guinea-pigs and is not affected by the serum of rabbits immunized against Group 1. In postscarlatinal otitis these bacilli were found in no less than 72 per cent. of 43 cases, and 20 per cent. gave pure culture. In 19 cases of acute non-scarlatinal otitis only 21 per cent. showed the presence of these bacilli. The evidence afforded by the study of the opsonic index is referred to in the preceding abstract.

40. **Phagocytosis and Opsonins.**—Ruediger and Davis have studied the question of the mechanism of phagocytosis in the lower animals, and they find that here also opsonins are essential. Furthermore, they find that the sera of cold-blooded animals may opsonize bacteria for phagocytosis by the serum-free leucocytes of warm-blooded animals, including man, and vice versa. The generalization may now be made that phagocytosis in representative forms of all the great group down to and including echnioderms seems to be largely dependent on the presence of opsonins in the serum.

41. **Diphtheria Bacilli in Normal Throats.**—Von Sholly found that diphtheria-like organisms are present in a certain number of normal throats even when exposure to infection by diphtheria is not traceable. About one-third of the organisms isolated from such persons are virulent and their carriers, consequently, a potential source of danger. Virulent bacilli are found about four times as often in healthy persons exposed as in those apparently not exposed. Mild sore throats and colds with bloody nasal discharge, which are common in children, should not be treated lightly, but examined carefully, with a view to a definite bacteriologic diagnosis.

42. **Tuberculosis of Placenta.**—No matter where located in the placenta, Warthin regards necrosis of the cells as the primary lesion of tuberculosis. Lesions in the syncytium or endothelium lead to thrombi which may become changed into tubercles through proliferation of mixed cells in the neighborhood. In the decidua there is necrosis of the tissue and thrombosis of the sinuses, but tubercles are not formed from the decidual cells. The current view that the tubercle bacillus primarily causes a cell proliferation is not substantiated by the results of Warthin's study of tuberculosis of the placenta.

43. **Leukemia.**—The common fowl appears to suffer not infrequently from various forms of leukemia. Warthin describes the findings in a typical case of lymphatic leukemia in a hen. He could obtain no evidence of the existence of an infective causal agent. There occurs also in the fowl a disseminated lymphocytoma without leukemia, and Warthin is inclined to regard leukemia and a leukemic lymphocytoma as genetically related or different stages of the same process which in its essential nature is interpreted as a malignant tumor.

50. **Etiology of Dengue.**—Ashburn and Craig announce that they have been able to produce typical attacks of dengue in healthy men by the intravenous inoculation of filtered and unfiltered dengue blood; consequently they conclude that the cause of the disease is probably ultramicroscopic in size. The disease is transmissible by the mosquito (*Culex fatigans*) and this is probably the most common mode of transmission.

51. **Egg White and Its Products.**—Vaughan and Wheeler show that the phenomenon of the so-called serum disease or anaphylaxis—the remarkable hypersusceptibility to serum or

certain poisons produced by previous injections of a small quantity of serum or poison—are obtainable by means of egg-white. They find that when egg-white is split up the non-toxic portion will sensitize the animal to the unbroken proteid which is not poisonous to untreated animals. The interesting theory is advanced that the hypersusceptibility is due to the increased development in the treated animal of specific zymogens which on activation split up the whole proteid subsequently injected so rapidly that the animal is overwhelmed by the action of the toxic portion. It must be recalled that according to Vaughan many proteids may be split into poisonous and non-poisonous groups. Sensitization, that is to say, the specific zymogens, is highly specific: Guinea-pigs sensitized with woman's milk respond to a second treatment with the same milk, but not to cow's milk, and *vice versa*. Immunity is considered as a different manifestation of the same process as proteid susceptibility. In the case of immunity the specific ferment splits up living foreign proteid—the microbes—before it has time to multiply; in this case the animal is immune. When the cleavage is less prompt but sufficiently so to split up the microbe before it elaborates within itself a fatal amount of the poison, the animal sickens, but recovers; and when the ferment is still less prompt so that the microbes construct a fatal dose of poison, then its liberation causes death.

Wisconsin Medical Journal, Milwaukee.

May.

53 *Appendicitis. W. E. Ground, Superior.
54 *Non-operative Treatment of Appendicitis. W. H. Banks, Roberts.
55 *Medical Advertising. G. Martin, Baldwin.
56 Surgery of Nasopharyngeal Structures. M. Iverson, Stoughton.

53. Appendicitis.—Ground presents some personal impressions obtained from an operative experience in over 1,000 cases.

54. Id.—Banks believes in the non-operative treatment of appendicitis. The Ochsner method, together with careful and thorough washing out of the lower bowel, has given him the best results. Enemas of normal salt solution have always relieved hunger and thirst when given in conjunction with other rectal food.

55. Medical Advertising.—Martin speaks of the physician who uses the press in an attempt to keep himself before the public by publishing, causing or permitting to be published, his professional doings, hoping and expecting to gain by these methods of surreptitious advertising exactly what the business man contracts and pays for, in a fair and square deal with the newspaper man.

Journal of the South Carolina Medical Association, Greenville.

May.

57 *March of Sanitation. W. Wyman, Washington, D. C.
58 Gallstone Disease. J. B. Deaver, Philadelphia.
59 *The County Society. J. W. Jervey, Greenville.
60 Case of Hematocele of Testicle. S. C. Baker, Sumter.
61 *Sexual Knowledge versus Sexual Ignorance. W. Cheyne, Sumter.

57.—This article appeared in THE JOURNAL, June 1, 1907, page 1830.

59.—See abstract in THE JOURNAL, May 11, 1907, page 1626.

61.—See abstract in THE JOURNAL, May 11, 1907, page 1625.

California State Journal of Medicine, San Francisco.

May.

62 President's Address, Medical Society of State of California. R. F. Rooney, Auburn.
63 Alcohol: The Effect of Its Use and Abuse. A. W. Holsholt, Stockton.
64 Genu Valgum Adolescentium. J. T. Watkins, San Francisco.
65 *First Two Hundred Confinements at the San Francisco Maternity. A. B. Spalding, San Francisco.
66 *Poisoning by Small Doses of Atropin. H. W. Gibbons, San Francisco.
67 Cyclodialysis for Chronic Glaucoma. E. C. Sewall, San Francisco.

65. San Francisco Maternity.—Spalding reports the result obtained with 200 poor women, who were confined in their own homes, attended by students and nurses of the dispensary, under the supervision of a physician. There was not a single maternal death, and the fetal mortality was less than 5 per cent., considering only the 191 babies alive at birth. In this series the fetal mortality consisted of 9 stillbirths, and 9 babies died during the first eleven days, making a total fetal mortality of 9 per cent. The Maternity offers three interne services each year to regular graduates; the term of service is four months. In return for this service the interne receives room, laundry and $35 a month.

66. Poisoning by Atropin.—Gibbons reports the case of a woman who exhibited all the symptoms of atropin poisoning, following the ingestion by mouth of 1/100 grain on three successive nights. Recovery from the effects of the drug was unusually slow.

Cleveland Medical Journal.

May.

68 *Peptic Ulcer Following Gastrojejunostomy. C. A. Hamann, Cleveland.
69 Early Aspiration in Pleurisy with Effusion. N. C. Yarian, Cleveland.
70 *Unilateral Hypertrophy of Leg with Congenital Misplacement of Muscle Tissue of Foot. A. S. Maschke, Cleveland.
71 Case of Chylous Cyst of Thoracic Duct. H. F. Biggar, Jr., Cleveland.
72 Epithelioma in Carbon Workers. A. W. Lueke, Cleveland.

68. Peptic Ulcer Following Gastrojejunostomy.—In a case of peptic ulcer Hamann did an anterior gastrojejunostomy and an enteroenterostomy. The patient recovered nicely from the operation and was well until the twenty-first day after the operation, when he began to complain of epigastric pain. There was no vomiting and no fever; the bowels moved normally and there was no distension. The pain was severe enough to demand the use of morphin. On the twenty-fourth day the patient went home. He died suddenly on the twenty-sixth day. The autopsy revealed a perforated ulcer about one inch in diameter on the anterior wall of the jejunum, just beyond the junction with the stomach. The ulcer was exactly where the highly acid gastric juice would come in contact with the intestinal mucosa. General peritonitis existed and remains of food were found in the peritoneal cavity.

70. Unilateral Hypertrophy of Leg.—The hypertrophy in Maschke's case involved all the structures, bony as well as soft parts. On the bottom of the foot was a mass which occupied and filled out the entire hollow of the instep. The skin was freely movable. The tumor had a soft, spongy consistency, and faded off imperceptibly into the surrounding tissues. The mass was excised and proved to be ordinary, fully developed, striated muscle, with regularly disposed sarcous elements.

Bulletin of the Lying-in Hospital of the City of New York.

March.

73 *Consideration of 1,446 Persistent Occiput Posterior Cases. J. A. Harrar, New York.
74 *Treatment of Acute Bronchitis in Infants. E. L. Coolidge, New York.
75 Subcutaneous Emphysema in Labor. G. W. Kosmak, New York.
76 Complete Rupture of Pregnant Uterus. R. W. Lobenstine, New York.
77 Number of Ova in Graafian Follicle. J. E. Welch, New York.

73. Occiput Posterior Cases.—Harrar reports 1,446 cases of persistent occiput posterior as occurring among 41,800 cases, or 3.46 per cent. Out of this number 1,013 children were born spontaneously with occiput posterior and the face to the pubes. In the remaining 433 cases forceps were used 286 times; podalic version was done 100 times; manual correction alone sufficed in 25 cases, while craniotomy was done 22 times. In the 1,013 spontaneous labors there were 4 maternal deaths, one from eclampsia, and one from pulmonary tuberculosis. In the 433 operative confinements there were 11 maternal deaths, forceps being used in 3 cases, version in 7 and craniotomy in one. In the 1,013 spontaneously delivered cases there were 25 stillbirths; in the 286 forceps operations there were 29 stillbirths; in the 100 versions, 29 stillbirths, which, with the 22 craniotomies, brings the fetal mortality up to 105 or 7.3 per cent. Including 51 babies who died within the first few days, the infant mortality of all the posterior deliveries was 9 per cent.

74. Treatment of Acute Bronchitis in Infants.—In the mild cases Coolidge puts the baby to bed and gives it a teaspoonful of castor oil. A warm sponge bath is ordered, and every night

a mustard plaster is placed on the child's chest for five or ten minutes, until the skin is red. If the child is bottle-fed, the usual milk formula is diluted to about one-half the usual strength; if it is breast-fed, from half an ounce to one ounce of water is advised before each meal. No medicine is given except the castor oil. In the severe form of bronchitis the mustard plaster is applied to the chest three or four times in the twenty-four hours. Steam inhalations control the irritating cough. Sometimes compound tincture of benzoin is added to the boiling water. The inhalations are given every two or three hours, for fifteen minutes at a time. Castor oil is given as often as is necessary, and the temperature is controlled by sponge baths of tepid water and alcohol. When the cough is very irritating from 20 to 30 drops of compound licorice mixture are given every three hours for babies less than one year old.

Washington Medical Annals, Washington, D. C.

May.

78 Evolution of the Naval Medical Service and the Naval Medical School. J. C. Wise, U. S. N.
79 Circulatory System in Gastrointestinal Autointoxication. P. S. Roy, Washington.
80 *Posterior Bursa of Knee. G. T. Vaughan, Washington.
81 *Suppurative Appendicitis in Scrotal Hernia. G. T. Vaughan.
82 Hydatidiform Mole. J. D. Braddeld, Washington.
83 *Aneurism of Arch of Aorta and Tuberculosis of the Heart. J. D. Thomas, Washington.
84 Gangrene of Appendix with Diphtheritic Ileocolitis. D. S. Lamb, Washington.
85 Sarcoma of the Knee. J. F. Mitchell, Washington.
86 Carcinoma of the Rectum. J. F. Mitchell, Washington.
87 Partial Review of Laryngology. A. B. Bennett, Washington.
88 *Recurrent Sarcoma Treated with Toxins. G. T. Vaughan, Washington.
89 Left Posterior Tibial Thrombosis Following Right Side Abdominal Operation. A. A. Snyder, Washington.
90 Fibroids of Uterus. J. T. Johnson, Washington.
91 *Radical Treatment of Inguinal Adenitis. W. A. Jack, Jr., Washington.
92 *Case of Strangulated Ventral Hernia. I. S. Stone, Washington.

80. Posterior Bursa of Knee.—In Vaughan's case the bursa was attached to the inner side of the internal attachment of the gastrocnemius muscle. The tumor had existed for several years.

81. Suppurative Appendicitis in Hernia.—Vaughan found the contents of the hernial sac to consist of a perforated appendix surrounded by an abscess, which was separated from the abdominal cavity by adhesions in the inguinal canal. The appendix was obliterated, hypertrophied, perforated and gangrenous.

83. Aneurism of Aorta and Cardiac Tuberculosis.—Thomas' patient gave a history of syphilis, the initial infection dating back ten years. The aneurism was situated on the floor of the transverse portion of the arch, and death resulted from rupture into the left bronchus. The pericardium was thick and adherent. In the right auricle was a tubercular anode.

88. Toxins in Recurrent Sarcoma.—The case reported by Vaughan was one of sarcoma of the right ulna, following a green stick fracture, in a young man 17 years of age. Nearly eight years after the operation a large tumor appeared in the abdomen. The patient was treated by Coley's mixed toxins and improved very much. He is still under treatment.

91. Radical Treatment of Inguinal Adenitis.—Jack makes an elliptical skin incision, with its long diameter parallel to Poupart's ligament. The incision is carried down through the aponeuroses of the external oblique muscle. If necessary, the incision may extend straight downward over the course of the femoral vessel. The glandular mass is loosened from its bed and is removed in its entirety, including the elliptical portion of the skin, which has not been detached from the underlying tissues. The wound is closed immediately and the results are said to be excellent. Few instruments are required and the time of operation should not exceed half an hour.

92. Strangulated Ventral Hernia.—Stone's patient had a double hernia, the intestines protruding through two openings in the median line. The patient died from bronchopneumonia two days after the operation.

Pennsylvania Medical Journal, Athens.

May.

93 *Address of Chairman of the Section on Surgery of the Medical Society of the State of Pennsylvania, September, 1906. W. L. Estes, South Bethlehem.
94 *Injuries of the Thoracic Cavity. G. W. Wagoner, Johnstown.
95 Case of Foreign Body in Larynx. F. Alleman, Lancaster.
96 *Abscess of the Lung. W. L. Rodman, Philadelphia.
97 *Empyema in Children. J. H. Jopson, Philadelphia.
98 *Treatment of Pleural Effusions. E. Martin, Philadelphia.
99 Surgery of the Thoracic Cavity. J. C. O'Day, Oil City.
100 History of Immunity in Tuberculosis. B. Lee Harrisburg.

93.—See abstract in THE JOURNAL, Sept. 29, 1906, page 1049.

94, 96, 97, 98.—See abstracts in THE JOURNAL, Oct. 13, 1906, page 1221.

American Quarterly of Roentgenology, Pittsburg.

January.

101 *Roentgenology of Stomach and Intestines. H. Hulst, Grand Rapids, Mich.
102 *Roentgen-Ray Diagnosis of Renal Calculi. F. H. Baetjer, Baltimore, Md.
103 Skiagraphy of Accessory Sinuses of Nose. E. W. Caldwell, New York.
104 The Induction Coil. H. C. Snook, Philadelphia.
105 *Personal Technic in Treatment of Epithelioma. K. Dunham, Cincinnati.
106 *Treatment of Malignant Diseases of the Bladder Through Suprapubic Incision. A. L. Gray, Richmond, Va.
107 The Tube in Roentgen Therapy. E. G. Williams, Richmond.

101, 102, 105.—See abstracts in THE JOURNAL, Sept. 15, 1906, page 888.

106.—See abstract in THE JOURNAL, Sept. 15, 1906, page 889.

American Medicine, Philadelphia.

May.

108 Pathology and Treatment of Angina Pectoris. T. Schott, Nauheim, Germany.
109 Prevention of Adhesions After Abdominal Operations. M. B. Tinker, Ithaca, N. Y.
110 Solution of the Proprietary Medicine Question. F. E. Stewart.
111 Criticisms of the United States Pharmacopeia. R. W. Wilcox, New York.
112 Croupous Pneumonia. H. Johnston, Birmingham, Ala.
113 Non diabetic Glycosurias. A. L. Benedict, Buffalo.
114 The Eye From the General Medical Point of View. C. N. Howard, Washington.
115 Apparently Healthy Child Born to Syphilitic Parents. A. C. Wood, Philadelphia.
116 Bilateral Cervical Rib with Symptoms of Pressure on Brachial Plexus. C. B. Farr, Philadelphia.
117 Postoperative Intraocular Hemorrhage with Resulting Blindness. A. Bray, Philadelphia.
118 Case of Adiposis Dolorosa. G. E. Price, Philadelphia.
119 Physical Defects and their Cure in Kindergarten Children. M. M. Kelly, Philadelphia.

The Northwestern Lancet, Minneapolis.

May 1.

120 Influenza. T. W. Stumm, St. Paul.
121 Carcinoma of the Larynx. J. A. Watson, Minneapolis.
122 Ectopic Pregnancy. A. E. Benjamin, Minneapolis.
123 Use of Roentgen Rays in Fractures. J. M. Lewis, Minneapolis.

The Medical Fortnightly, St. Louis.

May 26.

124 Palliative Treatment of Carcinoma Uteri. E. E. Montgomery, Philadelphia.
125 New Technic for Circumcision. C. H. Shutt, St. Louis.
126 Case of Brow Presentation. P. Hinchey, St. Louis.

June 9.

127 Hemorrhoids. W. H. Stauffer, St. Louis.
128 Head Sections, with Method of Illustrating Anatomic and Surgical Subjects. E. E. Clark, Danville, Ill.

Medical Herald, St. Joseph, Mo.

May.

129 *Surgery of the Thyroid Gland. A. H. Ferguson, Chicago.
130 *Gastroptosis. R. T. Sloan, Kansas City, Mo.
131 The Eye and General Medicine. P. I. Leonard, St. Joseph, Mo.
132 Gastritis. W. T. Marts, Peoria Heights, Ill.

129, 130.—See abstracts in THE JOURNAL, April 13, 1907, page 1290.

Virginia Medical Semi-Monthly, Richmond.

May 10.

133 Surgical Treatment of Ulceration of Stomach and Bowels. G. E. Gavin, Mobile, Ala.
134 Diphtheria and Some Recent Experiences. A. T. Finch, Chase City.
135 Diagnosis of Mediastinal Disease. H. A. Christian, Boston.
136 Veratrum in Eclampsia. J. E. White, Wakefield.
137 Principles of Surgery. (Continued.) S. McGuire, Richmond.

Yale Medical Journal, New Haven, Conn.

May.

138 Opsonins and Their Relation to the Diagnosis and Treatment of Bacterial Infection. E. L. Opie, Baltimore, Md.
139 Case of Cervical Rib. W. R. Hartshorn, New Haven, Conn.
140 Id. C. J. Foote, New Haven.
141 Immunity in Tuberculosis. D. R. Lyman, Wallingford, Conn.

Mississippi Medical Monthly, Vicksburg.

May.

142 President's Address before the Mississippi State Medical Association. W. W. Crawford, Hattiesburg.
143 Physiologic Effect of the Waters of Hot Springs, Arkansas. E. H. Martin, Hot Springs.

Annals of Gynecology and Pediatry, Boston.

May.

144 Plastic Surgery of the Ovaries and Tubes. J. V. D. Young, New York.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

June 8.

1 *Acute Pneumonia in Children. H. M. Murray.
2 *Complete Vocal Rest in Laryngeal Tuberculosis. N. Bardswell and B. Adams.
3 Value of Ophthalmic Symptoms in General Diagnosis and Prognosis. F. M. Gunn.
4 *Acute Colitis and Ulcerative Colitis. S. Phillips.
5 *Tuberculin in Tuberculous Meningitis. A. Don.
6 Aortic Pressure in Postpartum Hemorrhage. M. Henry.
7 Muscular Spasm Under Anesthesia. J. M. MacPhail.
8 Asthma Caused by Impacted Tooth. A. J. R. Oxley.
9 Desquamation After Scarlet Fever. F. G. Haworth.
10 Normal Eruption of First Milk Tooth. A. T. Spanton.
11 Ovariotomy at Age of Ten. J. V. Armigan.
12 Unsuccessful Attempt to Convey Kala-azar to Animals. F. P. Mackie.
13 Treatment of Birth Asphyxia. J. W. Malim.
14 Case of Colocynth Poisoning. C. N. Barton.
15 Sudden Death from Cerebral Hemorrhage. H. W. Burman.

1. Pneumonia in Children.—Murray urges the value of a continuous record of the respiration rate, claiming that it does not receive the amount of consideration it deserves. He objects to the present classification of pneumonia in children because the symptoms and signs are so variable, and are met in such different combinations that the cases do not lend themselves to classification. He says that bronchopneumonia means a pneumonia that in spreading seems to follow the distribution of the bronchial tubes, and lobar pneumonia is a pneumonia that spreads by a fairly even advancing line. He contends that we should endeavor to estimate the individual value of each sign and symptom on the prognosis and treatment rather than, by means of them, to place the case in some hypothetical group and deal with the prognosis and treatment of that group as a whole. The complications, diagnosis, prognosis and treatment of pneumonia are also discussed.

2. Vocal Rest in Laryngeal Tuberculosis.—Bardswell and Adams report six cases of well-marked tuberculosis of the larynx, four having definite ulcerations, in addition to the congestion, in which complete vocal rest was followed by great benefit. All the patients had pronounced hoarseness before treatment was begun. As a result of treatment, extending on an average over five months, the laryngeal disease in all these cases has improved immensely. In the four ulcerated cases the ulcers have cicatrized completely. In five cases the normal voice has been restored, and in the sixth case the hoarseness was much less. In every case the improvement in the larynx has been associated with great improvement in the lungs and general health. This form of treatment is designated the "silence cure."

4. Acute Colitis.—Phillips presents a full report of twelve cases of acute and ulcerative colitis. These case reports serve as the basis for a very full discussion of the clinical history and the treatment of this affection.

5. Tuberculin in Tuberculous Meningitis.—In the case reported by Don the observations made extended over a period of three months. About four weeks after the commencement of the tuberculin treatment, the patient appeared to be perfectly well. He remained so for a little more than two weeks, when symptoms of meningitis again manifested themselves. The patient died four weeks afterward.

The Lancet, London.

June 8.

16 *Vagal and Vaso-vagal Attacks. W. R. Gowers.
17 Nature of Infectivity in Relation to Tumor Growth. D. A. Welsh.
18 Physiologic Effects of High-Frequency Currents in Disease. S. Sloan.
19 Variations in Age Incidence of Mortality from Certain Diseases. S. P. Murphy.
20 *Ligature of Renal Vessels by Transperitoneal Method for Cure of Persistent Urinary Renal Fistula. M. P. Holt.
21 Infection by Paratyphoid Bacillus. E. A. Gates.
22 *Case of Recurrent Pneumothorax. J. C. Sale.
23 Differentiation of Meningococcus from Other Gram-negative Diplococci in Nasopharynx of Cerebrospinal Fever Contacts. R. M. Buchanan.

16. Vagal Attacks.—Gowers employs this term to designate prolonged seizures, the symptoms of which consist chiefly in the disturbance of some of the functions of the pneumogastric, for the most part sensory and subjective. With the vagal symptoms there is often combined a slight mental change and also disturbance of the vasomotor center, causing constriction of the vessels and coldness, especially of the extremities. There may be some sensory impairment and sometimes, also, a form of slight tetanoid spasm. The attacks seldom last less than ten minutes, and more often continue for half an hour or more. There is a sudden onset of slight symptoms, rapidly increasing, and the ending is gradual. The seizures occur at varying intervals, often for months or years. The symptoms are chiefly sensations referred to the stomach, the respiratory system and the heart. Women are more often affected than men. Treatment must be directed toward the improvement of the general health. When an epileptic element can be traced much good is usually obtained from bromids in moderate doses, combined with belladonna or digitalis. Nitrite of amyl at the onset and slight inhalation of chloroform have proved beneficent. Gowers says that in all cases in which there is vasomotor spasm the regular administration of nitroglycerin is best.

20. Ligature of Renal Vessels.—After having made four unsuccessful atemp.s to perform nephrectomy, in a case of persistent discharging renal fistula, Holt successfully ligated the renal vessels on the assumption that complete atrophy of the renal secreting tissue would follow. This occurred; the sinus healed, and two years after the operation the patient is in the best of health.

22. Recurrent Pneumothorax.—Sale reports the case of a young woman, who during a period of six years has had eleven attacks of pneumothorax. There is absolutely no evidence of pulmonary tuberculosis.

Clinical Journal, London.

April 24.

24 *Enuresis and Fecal Incontinence in Children. G. F. Still.
25 *After-results of Operations on the Stomach. H. J. Paterson.
26 Effects of High Arterial Tension on the Heart. L. Williams.

May 1.

27 *Jaundice of Obscure Origin. N. Moore.
28 *Traumatic Neurosis. A. J. Whiting.
29 Low Blood Pressure, Actual and Potential. L. Williams.

May 8.

30 *Unusual Forms of Pyrexia. F. Taylor.
31 *Types of Vomiting in Children. G. A. Sutherland.
32 *Cold Abscess of Mesentery of Small Intestine. G. Barling.

May 15.

33 Clinical Demonstration at London School of Tropical Medicine. W. Bennett.

May 22.

34 *Dysmenorrhea. G. E. Herman.
35 Treatment of Fractures in Neighborhood of Joints. Watson Cheyne, E. Owens, A. Lane and others.
36 Treatment of Inflammation by Producing Passive Congestion. E. M. Corner.

May 29.

37 Headaches and Neuralgia. W. Harris.
38 Treatment of Fractures in Neighborhood of Joints. Watson Cheyne and others.
39 *Ovarian Cyst Complicating Labor. A. H. N. Lewers.

June 5.

40 *Volvulus of Entire Small Intestine, Cecum and Ascending Colon. J. Hutchinson.
41 Headaches and Neuralgia. W. Harris.
42 *Gastric Ulcer. D. Sommerville.

24. Enuresis and Fecal Incontinence.—Still insists on the importance of making a careful examination of the urine in every case of enuresis, because a clue to the treatment to be instituted is thus often obtained. Threadworms, he says, are so often the cause of enuresis that it is wise, even when their presence is denied, to give one dose of santonin, gr. 1 to 2 (0.06-0.13), with calomel, gr. 1 to 2½ (0.06-0.16) to make this point certain. In the majority of cases, however, belladonna is the remedy indicated, but to obtain the best results from its use, belladonna must be given on a definite plan and for a period of several weeks. At any period beyond infancy 5 minims of the tincture (0.30) should only be considered as an initial dose. In the case of a child over five years

of age, it is usually safe to begin with 10 minims (0.60). The dose should be increased by 2½ minims (0.15) every fifth or sixth day, until either the enuresis is stopped or the limit of tolerance is reached. The dose should be maintained just beyond the minimum efficient dose for a fortnight, and be reduced by decreases of 2½ minims once a week, and so gradually discontinued. If, after the belladonna has been pushed up to 20 minims (1.25) with diminution of the enuresis, but with the disorder still not completely controlled, and further increase of the belladonna produces alarming symptoms, it is well to combine with it tincture of lycopodium, 12½ minims (0.75) at first, with increases of from 2½ minims (0.15) up to 20 minims (1.25). The tincture of nux vomica, in 5 minim doses (0.30), may also prove useful, and so, too, potassium bromid or phenacetin, and fluid extract of rhus aromatics. The dosage of the latter is much the same as that of the tincture of belladonna. In a few cases, Still obtained excellent results from ergot, given in 20 or 30 minim doses (1.25-1.90) three times daily. He protests against the topical application of silver nitrate; the injection of fluids into the spinal canal or elsewhere, and massage of the neck of the bladder as a means of cure of enuresis. He urges the importance of the general management of these cases. In the treatment of incontinence of feces, he has obtained excellent results from the administration of Dover's powder, grain 1½ to 3 (0.09-0.19) three times a day, according to the age of the child, and a mixture of belladonna, with potassium bromid, to which arsenic and nux vomica may be added. All food likely to irritate the bowel must be prohibited, and all drink should be given either cold or only just warm.

25. **After Results of Operations on Stomach.**—A more full discussion of this subject will be found in a paper read by Mr. Paterson, before the Atlantic City session of the American Medical Association, June 4-8, 1907, and which will appear in full in THE JOURNAL.

27. **Jaundice of Obscure Origin.**—Moore discusses the pros and cons of this case, and finally concludes that the symptoms are caused by a gallstone, which produces temporary obstruction.

28. **Traumatic Neuroses.**—Whiting concludes that a traumatic neurosis is a real and serious thing, occurring quite apart from the question of compensation for damages. It has a clear, consistent clinical picture, and is pre-eminently a disabling affection. Its prognosis is uncertain, but always, in some degree, grave, and its treatment is lengthy and costly.

30. **Unusual Form of Pyrexia.**—Taylor discusses the pyrexia in Hodgkin's disease, malignant growths, syphilis, and posterior basal meningitis.

31. **Vomiting in Children.**—Sutherland speaks of habit vomiting; vomiting from pylor c spasm and from congenital pyloric hypertrophy; vomiting from acid intoxication, such as periodic vomiting, from delayed chloroform poisoning, and from salicylic acid poisoning; vomiting in Henoch's purpura, and cerebral vomiting.

32. **Cold Abscess of Mesentery.**—Barling reports three cases of tuberculous glands of the mesentery of the small intestine, in which resolution, cold abscess formation and pyogenic infection occurred, re pectively.

34. **Dysmenorrhea.**—Herman claims that if drugs will not relieve the menstrual pain, the proper treatment is to dilate the cervix at one sitting by bougies. Dilatation can be done without an anesthetic by the successive passage of different sized bougies on different days.

39. **Ovarian Tumor Complicating Labor.**—In one case reported by Lewers it was necessary to remove the tumor, a cyst, before labor could be terminated. In a second case, the tumor was a dermoid cyst of the ovary, but it did not complicate pregnancy.

40. **Volvulus.**—Hutchinson reports a case of volvulus of the entire small intestine, cecum and ascending colon, in which an operation was done successfully, and the patient recovered. The volvulus was the result of the development of a cyst in the lesser sac of the peritoneum. The progress of the case was exceedingly complicated, and not until three operations had been done did the patient make a complete recovery. The last two operations were done for the purpose of closing an artificial anus, which had been made at the primary laparotomy. This is the second case of the kind on record.

42. **Gastric Ulcer.**—Sommerville presents a brief review of the more important features of the etiology, diagnosis and treatment of gastric ulcer.

Journal of Tropical Medicine and Hygiene, London.

May 15.

43 Examination of Patients' Blood to Determine if Other than Mediterranean Fever Sera Would Agglutinate Micrococcus Melitensis. P. W. Bassett-Smith.

44 Treatment of Mediterranean Fever by Vaccines. P. W. Bassett-Smith.

June 1.

45 Noxious Insect Larvæ, Stinging Plants and Intestinal Myiasis in Angola. F. C. Wellman.

46 Transmission of Yaws by Ticks. E. E. Modder.

47 Blood Serum Reaction in Tubercle and Mediterranean Fever in Malta. A. Critien.

48 Disinfection of Meningococcus with Cyllin and Carbolic Acid. E. Klein.

49 Is the Distinction Between Entameba Coli and Entameba Dysenteriæ Valid? E. B. Vedder.

Annales d. Mal. d. Org. Gén.-Urin., Paris.

Last indexed XLVIII, page 1200.

50 (XXIV, No. 17, pp. 1281-1360.) Enlarged Kidney with Multiple Cysts. (Gros reins polykystiques.) E. Monod and E. Loumeau.

51 (No. 18, pp. 1361-1440.) *Subcutaneous Rupture of Kidney. (Rupture sous-cut. du rein.) L. Suarez.

52 *Suprapubic Cystotomy in Young Children. (Cystotomie suspubienne chez les jeunes enfants.) P. Mendes.

53 (No. 19, pp. 1441-1520.) Lesions in the Kidney During Experimental Infection with the Trypanosoma brucei. (Lésions du rein, etc.) M. Jungano.

54 Congenital Stricture of the Urethra; Diurnal Incontinence; Internal Urethrotomy; Recovery. (Rétrécissement cong. de l'urètre.) S. Galatzi.

55 Errors in Radiography for Urinary Calculi. (Erreurs rad.) Dervaux.

56 (No. 20, pp. 1521-1600.) *Technic of Transvesical Prostatectomy. (Prost. transvésicale.) P. Duval.

57 Uronephrosis in Acute Retention. (Uronéphrose.) R. Grégoire.

51. **Subcutaneous Rupture of Kidney.**—Suarez discusses the mechanism of lacerations of the kidney and reports the details of a case. The patient was kicked in the kidney region by a horse, but the rupture occurred at the farthest point of the organ. The kidney had probably been dashed against the spine.

52. **Suprapubic Cystotomy in Five-Months Infant.**—The operation was undertaken for removal of a bladder stone, and the child made a smooth recovery. In 27 out of 32 operations of the kind which Mendes has performed on male patients of all ages, he sutured the bladder, and the wound healed by primary intention in all but 6 cases. In children especially, the tissues possess so much vitality that the sutured wound heals exceptionally soon. The symptoms of the bladder stone, in the infant were pain during urinating, evidenced by kicking, struggling and screaming, cloudiness of the urine which contained quantities of phosphates. The abdomen was relaxed and not tender. The bladder stone was discovered, under chloroform, and was extracted four days later, under chloroform, by a high incision.

56. **Technic of Transvesical Prostatectomy.**—The technic is illustrated; the operation was done in an infected case during an afebrile interval. The wound healed by primary intention and voluntary micturition was restored by the eleventh day.

Bulletin de l'Académie de Médecine, Paris.

58 (LXXI, No. 22, pp. 663-694.) *Congenital Cardiovascular Affections in Inherited Syphilis. (Affections cardio-vasculaires cong. d'hérédo-syphilitiques.) L. Landouzy and L. Laederich.

58. **Cardiovascular Affections in Inherited Syphilis.**—Landouzy relates a case of malformation of the heart and aorta in an infant with inherited syphilis, and dwells on the probability that these malformations are the result of the action of the specific poison of the syphilis. He thinks that preventive mercurial treatment might ward off such malformations or attenuate them if already established. The physician is better equipped now than ever to diagnose syphilis, to treat it, to warn against too early marriage and to insti-

tute preventive treatment before and after conception, and, above all, to combat the cardiovascular affections that may present themselves in the offspring. Landouzy believes that specific medication along these lines will reduce the sphere of teratology, while congenital cardiac defects may be relieved, improved or even banished altogether in cases which our fathers would have regarded as utterly beyond their skill. When this is accomplished, the mortality and morbidity from cardiovascular affections will soon show a notable reduction. Syphilis, inherited or acquired, he declares, will not so frequently be allowed to fasten on the cardiovascular apparatus with such irremediable localization.

Archiv f. Verdauungs-Krankheiten, Berlin.
Last indexed, XLVIII, pages 1145 and 1221.

59 (XIII, No. 2, pp. 101-222.) *Successful Treatment of Case of Idiopathic Dilatation of Colon. (Hirschsprungsche Krankheit.) J. Schreiber.
60 *Cancer in Digestive Tract Under the Age of 20. (Magen-Darmkrebs.) E. Bernoulli.
61 *Alimentary Hypersecretion. (Allm. Hypersekretion.) W. Zweig.
62 *Unreliability of Microscopic Findings in Stomach Contents for Diagnosis of Cancer. (Mageninhaltsstauung, etc., bei Magenkrebs.) J. Lewinski.
63 *Dry Powder Treatment of Sigmoiditis and Proctitis. (Neue Behandlungs-methode der chron. Sig. und Proct.) E. Rosenberg.

59. Successful Opium Treatment of Idiopathic Dilatation of Colon.—Schreiber's patient was a Russian woman, 20 years old, presenting the typical symptoms of Hirschsprung's disease, gradually developing during the last four years. An operation was considered, but was soon found unnecessary, as the whole trouble was found to be the result of an essential, uncomplicated, spasmodic contraction of the lower portion of the sigmoid flexure. Application of heat to the region seemed to do more harm than good, and enemata failed to relieve. Introduction of a large intestinal tube allowed constant passage of feces, but the odor was insupportable, and this measure had to be abandoned. As soon as the trouble was traced to spasmodic contraction, opium was given, and, as if by magic, all the symptoms subsided, defecation proceeded normally, the emaciated patient recovered complete health in three weeks. The sigmoid flexure was found to be abnormally long, evidently a congenital anomaly. Roentgen findings were misleading and rectoscopy at first was possible only for about 11 cm. above the anus. At this point the intestine was constricted. Repeated attempts to pass this constriction proved unsuccessful, even with compressed air, etc., but these attempts always relieved the patient somewhat as gases escaped afterward. The constricted portion was finally passed by cautiously pushing against the stricture a thick, oiled wad of cotton. This dilated the stricture and the rectoscope could be introduced for 18 cm. Keeping this up, very cautiously, under constant visual control of the conditions in the intestine, forging ahead a tenth of an inch at a time, the rectoscope was gradually introduced as far as 21 cm., when it was found that the constricted portion had been passed, and the rectoscope was in the dilated colon above the stricture. The colon was three or four times normal diameter, and the mucosa was normal in aspect. This cleared up the diagnosis at once and administration of opium daily soon conquered the spasm. Schreiber discusses the subject of idiopathic dilatation of the colon in general, and expatiates on the great value of "recto-romanoscopy," the Latin term for the sigmoid flexure being S. romanum.

60. Cancer in Digestive Tract in Persons Under 20.—Bernoulli reports from Switzerland 3 cases of cancer in stomach or rectum, in a lad of 15 and in 2 girls of 17 and 18. He gives brief summaries of similar cases from the literature, a total of 50 in all, including 13 in which the stomach was the seat of the lesion; the small intestine in 3; colon in 5; sigmoid flexure in 8, and the rectum in 21. Adenocarcinoma occurred in 11 cases, and 4 varieties of carcinoma were observed, including 16 colloid and 8 medullary. Cachexia seems less frequent in youthful victims, anemia with otherwise good conditions of nourishment being the rule. The course is unusually rapid; the average in 19 unoperated cases was 5.7 months, and 21.4 months in 9 cases in which the growth was removed. Survival of over a year was noted in only 2 cases, in one of which no operation had been done and merely a palliative artificial anus had been made in the other. The symptoms are practically the same as with adults. In 2 instances the carcinoma in stomach or colon was evidently congenital; the youngest victim of rectal cancer in the list was 11 years old. The sexes were about evenly divided.

61. Alimentary Hypersecretion.—When the stomach glands react to the normal stimulus of food in the stomach with an excessive secretion of gastric juice, numerous symptoms of nervous dyspepsia are observed, with possibly headache, sleeplessness, irritability, etc., oppression and pain in the stomach, variable appetite, and occasionally vomiting, nausea and acid eructations. Zweig has encountered the typical condition in 30 cases during the last three years. Men seem to be more frequently affected than women. Treatment is that of nervous dyspepsia in general, avoiding everything that stimulates production of gastric juice, such as soups, alcohol, black coffee and tea. Belladonna seems to be most efficient in reducing the excessive secretion. He gives it in a suppository or in powders—sodium citrate and magnesia, each 15 gm. (225 grains) and extract of belladonna 0.3 gm. (5 grains). Boas advises alkalies, as already mentioned in THE JOURNAL, March 16, 1907, page 982. Lavage of the stomach is not required unless the motor functions are much depressed, but massage may prove useful by facilitating expulsion of the abnormally large amount of gastric juice. Boas' dry test breakfast is an aid in differentiating the condition.

62. Microscopic Study of Stomach Contents for Differentiation of Cancer.—Lewinski gives the findings in twenty-two patients, the results showing that they are unreliable for the diagnosis of cancer. The signs generally accepted as pathognomonic of cancer were found occasionally in healthy stomachs, while they were not constantly encountered in the cases of known malignant disease.

63. Dry Powder Treatment of Inflammation of the Lower Intestine.—Rosenberg first rinses out the bowel carefully and then insufflates a dry powder under visual control, commencing at the farthest accessible point and continuing down to the anus, leaving no spot bare. This insures that the antiseptic in the powder remains a long time in contact with the inflamed mucosa, much longer than when introduced in fluid form. He has found patches of the powder still in place after six hours. The patient assumes the knee-elbow, or, better still, the knee-chest position, on a low, comfortably upholstered table, and the rectoscope is cautiously introduced, trying to keep the tip from touching the walls. If the lumen is closed by contraction and does not open when gently touched with a wad of cotton or when compressed air is blown against it, further measures would better be postponed, he states, as nothing will be accomplished by using force. Sometimes the contraction opens spontaneously. In case of ulcerations or necrosis he cleans the spot with a wad of cotton dipped in a hydrogen dioxid solution, wiping it dry afterward with another wad, and then applying the powder. The insufflation is repeated every second day. He usually insufflates a powder composed of tannic acid, 15 parts, with 100 parts magnesium oxid, but has had good results also with bismuth and other disinfectants in powdered form, deriving benefit sometimes from a change. Weeks and months may be required for a complete cure, and recurrences can not be prevented, as restitution is seldom possible. But relief is soon apparent, and the disturbances subside, even in cases in which the constant pains had required sedative suppositories for years. Warm sitz and half baths and compresses are useful as adjuvants. The stools must be kept soft, with as little waste as possible.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

64 (XXXIII, No. 18, pp. 705-744.) Immunity Reactions of Tuberculous Tissue and Their Connection with the Theory of the Action of Tuberculin. (Immunitätsreaktionen tub. Gewebes.) J. Morgenroth and L. Rabinowitsch.
65 *Diagnosis of Subphrenic Abscess. (Subphren. Absc.) Determann.
66 *Headache and Neurasthenia of Nasal Origin. (Nasales Kopfschmerz und nasale Neurasthenie.) A. Hartmann.
67 Etiology and Diagnosis of Loose Body in Joint. (Gelenkmaus.) F. Ewald.

68 Spirochetes in Pointed Condyloma. (Spirochätenbefunde in spitzen Condylomen.) A. Dreyer.
69 Appreciation of Therapeutic Value of Water in Early French Folklore. (Heilkraft des Wassers, etc.) W. Ebstein.

65. **Subphrenic Abscess.**—Determann gives the details of a case of subphrenic abscess erroneously diagnosed as empyema of the right pleural cavity. The lessons learned from this experience are that the possibility of a subphrenic abscess should be borne in mind when one is confronted with a case of apparent pleuritic exudate if percussion shows a very gradual transition from complete to lessened resonance. Also when fluid can be obtained by exploratory puncture only in the lowest part of the thorax, and comparatively deep, and especially when there is a doughy swelling in the dependent parts. Roentgenoscopy will confirm the diagnosis, showing the position of the diaphragm and its excursions. A subphrenic abscess pushes up the diaphragm, making a conical recess, which shows plainly with the Roentgen rays. Autopsy in the above case showed that the lesion extended so far into the liver that a fatal termination was inevitable. Nothing during life, however, indicated that the trouble was in the abdomen. The lung was adherent to the pleura owing to an old pleuritic process, which aided in obscuring the diagnosis.

66. **Headache and Neurasthenia of Nasal Origin.**—Hartman has frequently found that patients suffering from recurring headache or from neurasthenia are relieved of the trouble by removal of some obstruction in the nose or sinuses or by the treatment of a sinusitis. In one of his cases trigeminal neuralgia had persisted for weeks, the pain being so intense that sleep had been impossible. The most diverse treatment had given no relief. All pain vanished immediately after the maxillary sinus was evacuated, removing cheesy matter with which it had been filled. In other cases supraorbital neuralgia, which recurred every day at a certain hour, was the result of inflammation in the frontal sinus and was cured by appropriate treatment. He has witnessed the prompt vanishing of the severest frontal neuralgia after application of the Politzer method. The pain may be due to the inflammation itself or to compression from secretions or merely to rarefaction of the air in the sinus. Even the severe frontal headache of influenza can be immeasurably improved by a single application of the Politzer method of inflation. The pains subside entirely or temporarily. Repeating the application the next day soon completes the cure. The effect is similar to that derived from the air douche in middle ear affections. In another case described, chronic neuralgia had persisted for over a year with intense pains in the right side of the head. The use of the air douche soon banished the pain entirely. The trouble was not due to an inflammatory process in this and similar cases, but merely to occlusion of the sinus, shutting off communication with the air. His experience has demonstrated that this is a comparatively frequent occurrence and is liable to cause distressing pain. Opening a communication into the nose banishes the pain at once. Some of his patients return to him often for relief, as every "cold" causes the communication into the sinus to become stopped up. The passage of a thick sound through the nose into the sinus frees the patient at once from all pain. He has found in other cases that headache may be caused by morbid conditions in the muscles at the back of the neck, which can be corrected by Faradization. Removal of adenoid vegetations, deviations and thickening of the nasal septum, swellings of the nasal mucosa, or correction of other anomalies in the nose, should always be tried in cases of persisting headache and neurasthenic symptoms. The obstruction in the nose may be the sole or the principal factor in the trouble.

Deutsche Zeitschrift f. Chirurgie, Leipsic.
Last indexed, XLVIII, page 628.

70 (LXXXIV, Nos. 1-3, pp. 1-276.) Marmorek's Serum in Treatment of Tuberculosis. (Antitub.-Serum Marmorek.) A. v. Hueltes.
71 Tuberculosis of the Testicles. (Hodentub.) P. Rock.
72 Spinal Anesthesia. (Lumbalanästhesie.) F. Hohmeier.
73 Contusion of Pancreas Cured by Tamponing. (Isolierter Zertrümmerung der abnorm gelagerten Bauchspeicheldrüse.) Thöle.
74 Appendicitis in the Army. (Zur App.-Frage, mit bes. Berücksichtigung der Armeestatistik.) Karrenstein.
75 *Statistics of Carcinoma of Mucosa of Mouth and Throat. (Schleimhaut-carcinome des Mundes und Rachens.) A. Meller.
76 *Pathology of Male Breast (Path. der männlichen Brustdrüse.) J. Finsterer.
77 Typical Bending Injuries of the Extensor Communis Digitorum of the Ungual Phalanx. (Typische Beugungsverletzungen der Fingerstrecker am Nagelglied.) L. Kirchmayr.
78 Diphtheria in Surgical Ward at St. Gallen, 1881-1905. (Die Diphtherie.) O. Wenner.
79 Congenital, Incomplete, External, Median Fistula in the Neck. (Mediane Halsfistel.) G. Deikeskamp.
80 Mechanism of Cause of Luxation in Inferior Radioulnar Articulation. (Entstehungsmechanismus der Luxation, etc.) Thon.

75. **Mouth and Throat Cancer.**—Meller reviews and classifies 207 cases of carcinoma of the mucosa of mouth and throat in which an operation was performed in the second surgical clinic at Vienna, 1894 to 1904 (Gussenbauer and Hochenegg). This material shows that any part of the mouth can be the seat of the cancer, and that men are affected fifteen times oftener than women. Those who frequent saloons, he asserts, seem to show a special predisposition to the disease, but syphilis and smoking a pipe do not seem to enhance this tendency. The affection generally runs a fatal course in two years. The submaxillary glands are almost always involved and, exceptionally, other glands. The involvement of the glands can generally be determined at an early stage of the disease. A positive histologic finding in the glands is not absolutely unfavorable for the prognosis. The development of metastases at a distance at the time of the operation is a rare occurrence. The results of operation depend on the size of the tumor. Recurrence was observed in 79 per cent. of the surviving patients, but permanent recovery sometimes followed a second operation. The lower in the throa., the more unfavorable the prognosis of the carcinoma. The general mortality of the operation was 13 per cent., but 14.6 per cent. of the 207 patients were cured.

76. **Tumors of Male Breast.**—Eleven cases of carcinoma, 3 of sarcoma and 3 innocent growths of the male breast have been surgically removed at Hochenegg's clinic. These cases and others from the literature are summarized. None of the 11 patients with carcinoma succumbed to the operation, and one is in good health after 21 years; one died of an intercurrent affection after 11 years, and another is in good health 2 years after the operation. There was no tardy recurrence in any instance. Nothwithstanding the extensive resection, the function of the arm has not suffered.

Münchener medizinische Wochenschrift.

81 (LIV, No. 16, pp. 761-816.) *Acute and Chronic Pyelitis. (Nierenbeckenentzündung.) H. Lenharts.
82 *Treatment of Severe Anemia with Transfusion of Blood. (Behandlung schwere An. mit Bluttransfusion.) F. Morawitz.
83 Living Pale Spirochete. (Lebende Sp. Pall.) E. Ritter.
84 *Addison's Disease. (Add. Krankheit.) H. Starnberg.
85 *Persistence and Enlargement of Thymus with Exophthalmic Goiter. (Thymusdrüse bei Basedowscher Krankheit.) E. Gierke.
86 *Course of Typhoid after Preventive Serum Treatment.) (Typhusverlauf bei geimpften und nichtgeimpften Mannschaften, etc.) Eichholz.
87 *Treatment of Typhoid Bacillus Bearers. (Typhusbazillenträger.) Dehler.
88 *Experiences with Kuhn's "Suction Mask." (Kuhnsche Lungensaugmaske.) Stolzenburg. Id. E. Kuhn.
89 Testing Heart for Its Movability. (Prüfung des Herzens auf seine Beweglichkeit.) M. Hera.
90 Discovery of Cause of Cancer by H. Spude. (Krebsursache.) R. Fischer.
91 *Hyperemia Treatment of Tuberculous Bone and Joint Affections. (Hyperämie-Behandlung der Knochen- und Gelenktuberkulose.) C. Deutschländer.

81. **Differential Temperature Curve in Pyelitis.**—Lenharts reviews his experiences with 80 patients with pyelitis, mostly after pregnancy or childbed. Six patients were men. A clinical cure was obtained in 54 cases. The patients feel entirely well, but bacteriologic examination shows that germs are still present in all but 16. Improvement alone was recorded in 14 cases, and 7 of the patients still have more or less disturbance. From the bacteriologic standpoint alone, only 20 were improved and 39 show no signs of improvement. He does not lay much stress on medicinal treatment, as he does not believe that it is possible to dislodge the bacteria from the renal pelvis by means of the drugs advocated for that purpose. Even under their long continued adminis-

tration the bacteriuria persists unmodified. In one case a child came into his charge who had taken urotropin (hexamethylenamin) daily for 6 months under a physician's directions, who published a report of the case as an example of the cures obtained with this drug. This child was pale and sickly looking, and luxuriant colonies of the colon bacillus could be cultivated from the urine. Lenhartz has most confidence in the copious drinking of hot linden flower tea, a pint being taken three or four times a day. This rinses out the kidney pelvis and the bladder so thoroughly that the tissues are given a chance to recuperate. It also always proves the best means to relieve the pain, possibly supplemented by an ice bag or hot pad applied to the affected side. Drugs may be useful as adjuvants, but he advises against giving them for months. Local treatment of the bladder is not necessary when the process is located in the renal pelvis. Puncture may be indicated, but in 10 out of 12 cases the large tumefaction spontaneously subsided. Instead of the decoction of linden flowers, an alkaline mineral water might be used to advantage. In 66 out of 80 cases the colon bacillus was found alone, and in 3, paratyphoid bacilli; in 2, the lactic bacillus and *B. proteus*, and once, Friedländer's pneumobacillus. The pediatrists, Escherich, Pfaundler and Heubner, have called attention to the importance of the colon bacillus in the development of pyelitis. They have observed a number of cases accompanied by fever lasting for a few days or weeks, these attacks sometimes recurring from six to eight times in the course of a year, and generally erroneously attributed to digestive disturbances. The temperature curve of pyelitis closely resembles that of croupous pneumonia, but the pulse and the respiration are very different. The sudden onset, intensity and extent of the pains may suggest appendicitis or peritonitis. Lenhartz is convinced that many cases of pyelitis have sailed under a false flag as influenza, rheumatic, gastric or typhoid fever, pneumonia, pleurisy or lumbago. High fever was observed in more than 73 per cent. of his 80 patients, and was generally ushered in with a chill, sometimes repeated. The febrile period lasted from 3 to 18 days, with 6 or 7 days as the average. In some cases the fever was more continuous, with a crisis between the sixth and tenth day, in other cases high, slightly remittent with a gradual descent. Sometimes the temperature keeps at a subfebrile point for weeks, or there may be a recrudescence. In another group of cases the temperature rises to a high level for two or three days at a time after intervals of normal findings. The most interesting and characteristic curves are those which show an actual cyclic course of the fever. Each recurrence presents the characteristics of the original attack, the intervals of normal or subfebrile temperature ranging from 3 to 10 days as a rule. The amount of urine is not diminished during these recurring acute attacks, but contains transiently exceptional numbers of bacteria. Frequently the relapse accompanies involvement of the hitherto sound kidney. After an afebrile interval of from 5 to 15 days a new attack commences with pains in the hitherto intact side, without any symptoms in the bladder during the interim indicating the transmission of the disease process. In 14 cases the relapse coincided with the menses; in others, the menses accompanied the crisis. He gives tracings showing the characteristic temperature curve.

82. **Efficacy of Transfusion of Blood in Severe Anemia.**—Morawitz reports from Krehl's clinic at Strasburg three cases of severe anemia in which the condition was growing progressively worse under arsenic and other measures. The hemoglobin declined under treatment from 35 and 25 to 30 or 20 per cent. A single intravenous injection of from 150 to 200 c.c. of defibrinated blood from another person was then made. No change was observed for three days, but then marked improvement became evident; the hemoglobin percentage rapidly increased and recovery soon followed. In the case of a lad of 15 the hemoglobin jumped from 30 to 100 per cent. in less than two months. The severe anemia in this case had been accompanied by indications of leukemia. In the second case the anemia followed parturition, although there had been no excessive hemorrhage. The hemoglobin increased from 20 to 50 per cent. in about six weeks. In the third case the patient was a woman of 47 who had suffered for a year with depression, pains in the limbs, palpitations and dyspnea. The liver and spleen were enlarged and a loud systolic murmur was heard over the heart. Hemoglobin was 25 per cent.; reds, 1,230,000; whites, 3,300. In less than a month after the transfusion the hemoglobin was 50 per cent., reds 2,600,000 and whites 6,000, and the patient continued to improve until the blood findings were practically normal by the end of the third month. Details of some other cases are related, but the interval has been too short since the transfusion to determine the outcome except in one case in which the patient was moribund and soon succumbed. It seems to be established, he thinks that there are certain cases of anemia in which the bone marrow is still capable of reacting and functioning, but in which the blood has become too anemic to supply the stimulus for functioning, and that this stimulus can be supplied from without by transfusion of blood or possibly by some form of organ therapy. Recent research by Carnot suggests an explanation for the phenomena observed as due to the loss of balance between the hemolysins and what he calls "hemapoetins."

84. **Addison's Disease.**—Stursberg describes three cases of tuberculosis of the suprarenals in which there was no pigmentation. The diagnosis was made in two from the remarkable weakness of the patients in strong contrast to their well-nourished aspect. Another sign is the low blood pressure not to be explained by any disturbances on the part of the heart. Gastrointestinal disturbances without traceable cause are further corroborative testimony. These findings differentiate Addison's disease even without pigmentation of skin or mucosæ. In one of the cases the patient's mother had been tuberculous at the time of her pregnancy.

85. **Persistence and Enlargement of Thymus in Exophthalmic Goiter.**—Gierke noticed that the thymus was enlarged in the cadaver of a person who had succumbed to exophthalmic goiter. Sifting the literature revealed that enlargement of the thymus had been noted in forty other cases of exophthalmic goiter on record, and he later had occasion to observe a second case. In one of his cases the patient succumbed at once after removal of two-fifths of the left lobe, and the thymus was found from two to four times the largest normal size. In both cases the exophthalmic goiter seemed to be exceptionally malignant, neither patient surviving more than two or three years after the first symptoms. The majority of deaths after operations for exophthalmic goiter seem to occur in persons with persisting thymus. This was noted in eighteen out of the thirty-five cases in which the record is complete. Gierke theorizes to explain the facts observed, saying that they certainly suggest some connection betwen the goiter and the thymus, possibly some compensating function. This is rendered the more probable by Owen's experience with a patient whose exophthalmic goiter was much improved by supposed thyroid treatment. It was learned afterward that the patient had been taking thymus extract by mistake, instead of thyroid extract. Mikulicz has also reported striking benefit from thymus treatment in exophthalmic goiter, especially with parenchymatous goiters in young patients. Thymus treatment has never been known to induce by-effects. Gierke adds that it may be possible to determine the enlargement of the thymus in patients with exophthalmic goiter, and study such cases to learn any possible peculiarities which they may present, differing from the symptoms of ordinary exophthalmic goiter.

86. **Results of Antityphoid Immunization of German Troops.**—Eichholz reviews the course of typhoid fever in sixty-eight men, half of whom had been previously treated with antityphoid serum. There was no mortality among the immunized, but three of the non-immunized patients died. Severe complications were observed in three of the former and in seven of the latter group. The height and duration of the fever were much less marked in the immunized.

87. **Operation on Gall Bladder Solely to Dislodge Typhoid Bacilli in a Bacilli Bearer.**—Dehler describes what is probably the first case in which the gall bladder was opened and drained solely for the purpose of putting an end to the con-

stant voiding of typhoid bacilli in the stools. The patient was an insane woman and, before the discovery that she was a typhoid bacilli bearer, she had infected a number of other persons. Extensive rectal prolapse and a constant tendency to diarrhea with much mucus and blood-streaked scraps increased the dangers of infection of others and of complications for herself. There were no symptoms from the gall bladder, but typhoid bacilli were discovered in the stools in 37 out of 39 examinations. The gall bladder was loosened from adhesions and opened. Two gallstones, the size of cherries, were removed. One of the stones had been obstructing the cystic duct. The bile flowed so freely after taking out this stone that removal of the gall bladder or drainage of the hepatic duct seemed unnecessary. A tube was inserted in the cystic duct and recovery was uneventful. With one exception—when a few bacilli were found in the stools soon after the operation—the stools have since been permanently free from typhoid bacilli. None was ever found in the blood or urine at any time. The patient has also been free from diarrhea since the operation, the stools being apparently normal. The agglutination test has persisted positive at 1:100. The typhoid bacilli were evidently dislodged from the gall bladder when the flow of bile became regular, without stagnation. To promote the biliary functions, cholagogues were given systematically after the operation. The gratifying results in this case justify, he thinks, intervention of the kind, or even removal of the gall bladder unless it may prove possible to enhance the patient's immunization by serotherapy or other means.

88. **Kuhn's Lung Suction Mask for Hyperemia Treatment of the Lungs.**—Kuhn's mask consists of a celluloid cap to cover mouth and nose, which renders inspiration difficult while expiration proceeds unhindered. This induces hyperemia in the air passages and lungs. Kuhn's experience at von Leyden's clinic has been decidedly favorable and Stolzenburg also reports great benefit from use of the mask in 24 cases of pulmonary tuberculosis. It not only relieves the patients subjectively, but exerts a favorable influence on the morbid process. He adds that it is perfectly harmless. Kuhn found in 16 patients that the number of reds increased by a million after one hour's use of the mask, while the whites increased by 1,000. He has used the mask further in five cases of fibrinous pneumonia, and the disease assumed a very mild course. In a case of severe asthma the patient, a woman, has been free from attacks for the first time in years since she has been systematically using the mask. It was described more fully in THE JOURNAL, page 1423 of vol. xlvii, 1906.

91. **Hyperemia Treatment of Tuberculous Bone and Joint Affections.**—Deutschländer has had extensive experience and reports forty-four cases in which constriction or suction hyperemia or both were applied. He states that the constriction should never be applied for more than an hour or so each day; the limb should be a bright red. The constriction should never induce pain or edema. After several weeks, treatment should be suspended for a few days. Fistulous and suppurating tuberculous processes can be treated advantageously by combining constriction and suction therapy. In order to ward off recurrences this form of treatment should be begun early and continued for a long time, even after all signs of inflammation have subsided. Abscesses require early incision, but tuberculous abscesses and edema need only puncture, with the suction hyperemia, no iodoform being required. Immobilization is not necessary; gentle movements are a direct advantage. Tuberculous joints must be relieved of all weight bearing for a long time, as an important factor in treatment.

Virchow's Archiv, Berlin.

Last indexed, XLVIII, page 1823.

92 (CLXXVIII, No. 1, pp. 1-170.) **Tuberculosis of the Liver with Tumor-like Large Nodule, Probably Associated with Syphilis.** (Grossknotige tumorähnliche Tub. der Leber.) W. Fischer.

93 **Study of New Formation of Bone in Osteoplastic Carcinosis.** (Knochenneubildung bei der osteopl. Karzinose.) H. Assmann.

94 **Development of Adenoma in Pituitary Body.** (Hypophysisadenoma.) C. Lowenstein.

95 **Case of Multiple Accessory Spleens.** (Nebenmilzen.) K. Schilling.

96 **Bacterial Casts Containing Iron in Blood Vessels of Kidney in Puerperal Sepsis.** (Eisenhaltige Bakterienzylinder.) M. Westenhoeffer.

97 **Lime in Vessels of Cortex of Child's Kidney.** (Kalk in den Rindengefässen der kindl. Niere.) B. Glaserfeld.

98 **Irregularity of Structure of Passively Congested Liver.** (Stauungsleber). C. Schantz.

99 **Case of Multilocular Omental Cysts.** (Zyste des Netzes.) H. Karas.

100 ***Determination of Syphilitic Antibodies in Cerebrospinal Fluid of Paralytics by Means of Complement-Deviation Test.** (Nachweis der syph. Antikorper, etc., nach dem Wassermann-Plautschen Verfahren der Komplementablenkung.) J. Morgenroth and G. Sterts.

101 **Localized Tuberculosis of Liver.** (Tub. der Leber.) J. Orth.

100. **The Hemolytic Test for Differentiation of Syphilis.**—This article presents the history of the complement-deviation test and describes its technic and various experiences with it. In eight cases of general paralysis the test invariably revealed the presence of syphilitic antibodies in the cerebrospinal fluid, while the findings were negative in all other affections with the exception of one case of secondary syphilis in which the findings were likewise positive. There was no evidence of syphilis in the history of seven of the paralytic patients, but the positive findings gave the clue. The test is liable to prove the key to a better comprehension of the pathogenesis of tabes and paralysis, although negative findings are not conclusive evidence against the presence of syphilis.

Gazzetta degli Ospedali, Milan.

Last indexed, XLVIII, page 2169.

102 (XXVIII, Nos. 12-18, pp. 113-192.) ***Bacteriemia in Typhoid for Prognosis.** (Ricerca del bac. d'Eberth nel sangue.) C. Marchese.

103 **Desquamation in 7 Patients Convalescing from Typhoid.** (Desquamazione, etc.) G. Applani.

104 ***Epidemic Pneumonia.** (Polmonite epidemica.) G. Recchi.

105 ***Formaldehyd Sterilization of Urethral Catheters.** (Sonde uretrali, etc.) R. Cecca.

106* ***Postoperative Vomiting.** (Profilassi del vomito consecutivo alla cloronarcosi.) M. Ferrari.

107 **Two Cases of Foreign Bodies in Air Passages.** (Corpi estranei delle vie resp.) A. Terribile.

108 ***Technic for Staining Degenerated Forms of Leucocytes in Blood.** (Colorazione dei preparati fatti per strisciamento e fissati.) G. Guyot.

109 ***Alimentary Levulosuria and Elimination of Methylene Blue in Liver Affections.** (Malattie di fegato.) M. Chiadini.

110 ***Orchitis with Parotitis as Cause of Sterility.** (Orchite da orecchioni.) S. Rebaudi.

111 **Children Who Eat Dirt.** (Geofagia infantile.) C. Tosatti.

112 **Fixation of Liver to Supplement Operations on Biliary Passages.** (Epatopessia.) C. Mariani.

113 **Experimental Study of Genesis of Anthracosis of Lungs.** (Antracosi.) F. Ravenna.

114 ***Remote Results of Cranlectomy for Trauma.** (Cranlectomie.) M. Fasano.

115 ***Preventive Serum Treatment of Diphtheria.** (Difterite.) A. Terribile.

102. **Bacteriemia in Typhoid and Prognosis.**—Marchese found bacteria transiently in the blood in sixteen out of twenty cases of typhoid fever. The cases in which the bacilli appeared very early in the blood and persisted unusually long, all proved to be exceptionally severe.

104. **Epidemic Pneumonia.**—Recchi describes an epidemic of 67 cases with 15 deaths in 1904, and another epidemic of 13 cases with 3 deaths in 1906. The disease was exceptionally severe in alcoholics and in pregnant women. General symptoms predominated in all, and streptococci were found associated with the pneumococci. By the third day the patient was generally in a condition resembling typhoid, the local symptoms were less prominent, but the spleen and liver were enlarged and painful, with slight icterus, very little expectoration but increasing dyspnea, arrhythmia and great depression. He obtained the best therapeutic results with large doses of digitalis, 4 gm. of digitalis a day in an infusion of 150 gm. A tablespoonful was given every hour, and it apparently hastened the crisis; the pulse became more regular and the general symptoms milder. When the pulse did not show any effect in the first twenty-four hours from the digitalis given in this way, the disease almost invariably proved fatal, confirming Maragliano's experience.

105. **Formaldehyd Sterilization of Urethral Catheters.**—Cecca states that he has been keeping his urethral sounds in the fumes of formaldehyd during the last ten months and the sterilization seems to be perfect while the sounds do not seem to suffer in the least, being still as smooth, polished and flexible as at first. Tests with infected catheters showed that from six to eight tablets of formalin in the bottom of the jar

containing the catheters were able to sterilize them completely in the course of nine days for staphylococci and in from sixteen to eighteen days for tubercle bacilli. These were the extreme limits for sterilization of the interior of the catheters.

106. **Postoperative Vomiting.**—Ferrari has tried various preventive measures and his experience indicates, he thinks, that the cause of postoperative vomiting is some idiosyncrasy due to a preceding, possibly unsuspected, pathologic condition of the stomach. Persons who suffer much from postoperative vomiting are liable to have the same experience after later operations, no matter what preventive measures may be used.

108. **Stain for Leucocytes.**—Guyot claims that the technic described allows the preparation to be stained at once or long after the specimen of blood has been drawn, thus making it very convenient. He says also that it is free from the causes of error inherent in other technics. The specimen is smeared on a cover-glass, and this is followed by fixation with formalin fumes (40 per cent.) for from 20 to 30 minutes; rinsing in distilled water and staining with Foa's hematoxylin; rinsing off excess of stain and applying a drop of a mixture of (a) 1 part of a saturated solution of Soudan III in 70 per cent. alcohol, and (b) 5 parts of glycerin. The specimen is ready for the microscope in from 10 to 12 hours.

109. **Alimentary Levulosuria and Other Tests in Liver Affections.**—Chiadini relates the details of seven cases of various liver affections in which he tested the functioning of the liver. His conclusions are that a reliable test is afforded by the administration of 50 gm. of levulose, fasting. If the liver is intact no glycosuria will follow, but levulosuria will be observed in case of pathologic conditions in the liver. If methylene blue is given in the dose of 5 cg., it will be eliminated as such if the liver and other organs are sound, but if the liver substance is much altered and if no other tissue is competent to perform its functions vicariously, then the methylene blue will be eliminated in the form of chromogen. The elimination both of the blue and of the chromogen is continuous. The findings of the alimentary levulosuria test and the blue test do not parallel each other, as they represent different functions of the liver. By combining the two tests and comparing the findings it is possible to obtain considerable insight into the functioning of this organ.

110. **Sterility from Orchitis During Parotitis.**—Rebaudi gives the particulars of fourteen cases of orchitis complicating parotitis in an epidemic several years ago. Thirteen of the men now present atrophy of the testicle involved in the orchitis. In six cases the sound testicle is hypertrophied and the men have children, but none of the others has a family. Although the process was unilateral in these cases no spermatozoa are found now in the semen. Cases with gonorrheal antecedents are not included in this list. He refers also to the possibility of cases of parotitis in which the orchitis might be the only manifest symptom. Orchitis may also accompany a tonsillitis and atrophy of the testicle is liable to result from this also.

114. **Remote Results of Craniectomy for Trauma.**—Fasano describes a few cases of traumatic injury of the skull in which he operated five or eight years ago. The gap left by the trauma and trephining healed over with approximately normal bone substance, without pulsation or abnormal sensations on pressure, and the patients are all in good health.

115. **Preventive Antitoxin Treatment of Diphtheria.**—Terrible states that he made 2,500 preventive injections of diphtheria antitoxin, each about 300 units, during a recent epidemic of diphtheria. The immunity conferred lasted from 19 to 20 days as a rule. In case circumstances required it he then repeated the injection and again after 40 days. Out of 2,000 individuals thus treated 17 contracted diphtheria, but none died. The age ranged from a few days to 20 or 23 years. His experience with the antitoxin in treatment of 523 cases of declared diphtheria was also extremely satisfactory, as he relates in detail. The mortality was 2.08 per cent., but averaged much less when the serum was given early. He advises large doses to start with. No inconveniences were observed in any case, although albuminuria was noted in 75 per cent. of the patients.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

The Standard Family Physician. A Practical International Encyclopedia of Medicine and Hygiene, Especially Prepared for the Household. By Prof. Carl Reisaig, M.D., of Hamburg, Germany, and Smith Ely Jelliffe, A.M., M.D., Ph.D., Professor of Pharmacognosy, Columbia University, with the Assistance of American and German Specialists in the Treatment of Diseases and Experts in Medicine and Surgery. Vols. I and II. Buckram. Pp. 1050. Price, $15.00. New York and London: Funk & Wagnalls Co., 1907.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Materia and Therapeutics in Jefferson Medical College, assisted by H. R. M. Landis, M.D., Visiting Physician to the Tuberculosis Department of the Philadelphia Hospital. Vol. II. June, 1907. Paper. Pp. 381. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co., 1907.

Alcohol and the Human Body. An Introduction to the Study of the Subject. By Sir Victor Horsley, F.R.S., etc., Surgeon to National Hospital for the Paralyzed and Epileptic, and Mary D. Sturge, M.D., Lond., Physician for the Birmingham and Midland Hospital for Women. With a Chapter by A. Newsholme, M.D., etc. Cloth. Pp. 370. Price, $1.50 net. New York and London: Macmillan & Co., 1907.

Postoperative Treatment. An Epitome of the General Management of Postoperative Care and Treatment of Surgical Cases, as Practiced by Prominent American and European Surgeons. By Nathan Clark Morse, A.B., M.D., Surgeon Emergency Hospital, Eldora, Iowa. Second Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 499. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

American Practice of Surgery. A Complete System of the Science and Art of Surgery. By Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D., and Albert S. Ashurst, M.D., New York City. Completed in Eight Volumes. Illustrated. Volume III. Cloth. Pp. 775. Price, $7.00. New York: William Wood & Co., 1907.

Laboratory Manual of Invertebrate Zoölogy. By Gilman A. Drew, Ph.D., Professor of Biology at University of Maine. With the Aid of Members of the Zoölogical Staff of Instructors of the Marine Biological Laboratory, Woods Hole, Mass. Cloth. Pp. 201. Price, $1.25 net. Philadelphia and London: W. B. Saunders Co., 1907.

Morris' Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by H. Morris, M.A., etc., and J. P. McMurrich, A.M., Ph.D. Illustrated. Fourth Edition. In Five Parts. Part III: The Nervous System, etc. Cloth. Pp. 1113. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

Clinical Psychiatry. A Text-book for Students and Physicians, Abstracted and Adapted from the Seventh German Edition of Kraepelin's "Lehrbuch der Psychiatrie." By A. Ross Diefendorf, M.D., Lecturer in Psychiatry in Yale University. Cloth. Pp. 562. Price, $3.75. New York: The Macmillan Co., 1907.

Practical Gynecology. A Comprehensive Text-book for Students and Physicians. By R. E. Montgomery, M.D., LL.D., Professor of Gynecology, Jefferson Medical College. Third Edition, Revised. Illustrated. Cloth. Pp. 970. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1907.

Poisons: Their Effects and Detection. By Alexander W. Blyth, M.R.C.S., etc., and Meredith W. Blyth, B. A. (Cantab.), etc. Fourth Edition. Thoroughly Revised. Illustrated. Cloth. Pp. 772. Price, $7.50 net. London: Charles Griffin & Co. New York: D. Van Nostrand Co., 1906.

Vest Pocket Abstract Series. Including Abstracts on Anatomy, Physiology, Chemistry, etc. By Drs. McCurdy, Charles A. Orr and Others. Flexible Leather. Pp. about 140 each. Price, $1.00 each: Pittsburg: Medical Abstract Co., 1907.

Lateral Curvature of the Spine and Round Shoulders. By Robert W. Lovett, M.D., Boston. Associate Surgeon to the Children's Hospital, Boston. Illustrated. Cloth. Pp. 185. Price, $1.75 net. Philadelphia: P. Blakiston's Son & Co., 1907.

Medizinal-Reskripte über die Deutschen Schutzgebiete für das Jahr 1904-1905. Herausgegeben von der Kolonial-Abteilung des Auswärtigen Amts. Cloth. Pp. 266. Berlin: Ernst Siegfried Mittler und Sohn, 1907.

Nephritis. A Manual of the Disease Commonly Called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By Seelye W. Little, M.D. Cloth. Pp. 134. Price, $1.25. New York: The Grafton Press, 1907.

History and Development of the Housing Movement in the City of Washington, D. C. By George M. Kober, M.D. Paper. Pp. 64. Washington: Washington Sanitary Improvement Co., 1907.

Ueber die Verwendbarkeit europäischer Truppen in tropischen Kolonien vom gesundheitlichen Standpunkte. Von Dr. Steuber. Paper. Pp. 37. Berlin: Ernst Siegfried Mittler und Sohn, 1907.

Operation, Care and Repair of Automobiles. Edited from the Files of the Horseless Age. By Albert L. Clough. Cloth. Pp. 342. New York: The Horseless Age, 1907.

Die Impotenz des Mannes, von Dr. Orlowski Spezialarzt in Berlin. Paper. Pp. 78. Price, 1.8 mk. Würzburg: A. Stuber's Verlag (Curt Kabitzsch), 1907.

Some Memoranda in Regard to William Harvey, M.D. By S. Weir Mitchell. Cloth. Pp. 45. New York, 1907.